SOAP AND CHEMICAL SPECIALTIES



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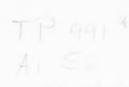
The American Agricultural Chemical Company

100 Church Street, New York 7, N. Y.



Vol. XXXVII, No. 5, May, 1961

Cover photo: CSMA staff looks over its handiwork. Studying recently announced monumental Compilation of Economic Poisons (Pesticides) Laws are these four key people of CSMA staff. They are, left to right: A. A. Mulli-ken, secretary; H. W. Hamilton, executive vice-president; Mrs. Lee Schapira, staff member, and Eugene E. Wilson, administrative assistant. All four assisted in the preparation of the volume.



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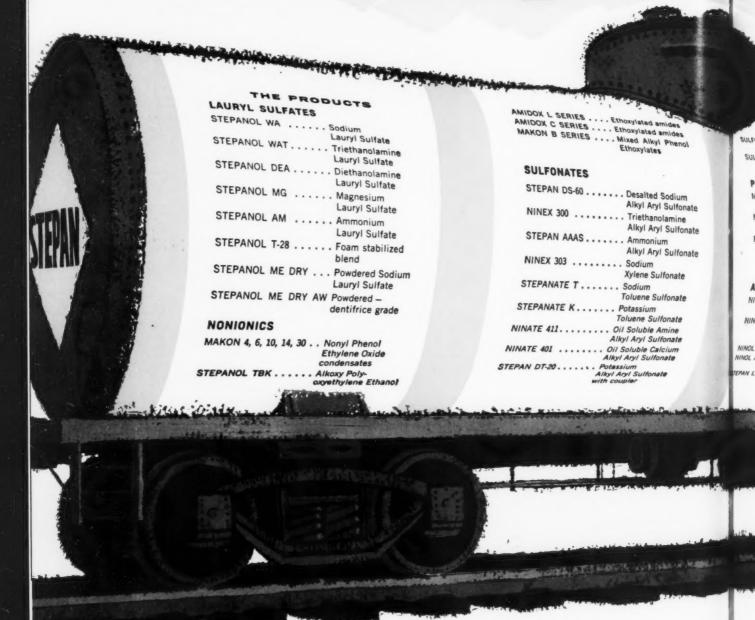
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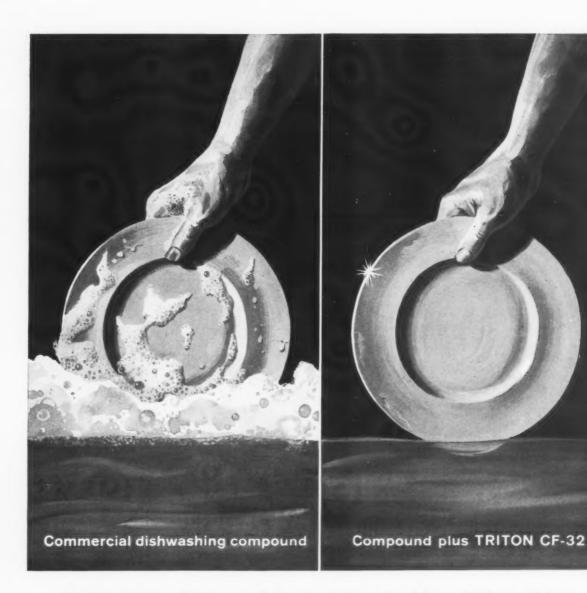


Rinse additive ends spotting after commercial dishwashing

	DMPANY, Sanitary Chemicals Dept, re, Philadelphia 5, Pa.
TRITON CF-10	omplete information on: rinse additive defoamer ow foaming detergent entative call
Name	Title
Company	
Address	
City	ZoneState

Both plates above were machine-washed with a well-known detergent. The plate on the right, however, received a final rinse with TRITON® CF-10. Notice that it is spot-free as it leaves the rinse water. This plate will also drain and dry faster, sparkling bright for direct transfer to the table. There's another bonus benefit for restaurant managers who use TRITON CF-10. Foaming is practically eliminated during subsequent washing cycles by the TRITON CF-10 remaining in the reused rinse water. A list of additional advantages and complete data can be yours by mailing the coupon on the left.

TRITON CF-10



Defoaming detergent improves machine dishwashing

Both solutions above contain machine dishwashing compound and standard food soil, but the one at right also contains Triton CF-32. The defoaming action of the Triton CF-32 added to the detergent in the tank at right is immediately apparent. As a result, table and kitchenware machine-washed in Triton CF-32 formulations come out clean, with a minimum of spotting, ready for immediate table use. Conventional compounds may develop foam in the presence of food soils after a few minutes of agitation, reducing dishwashing efficiency. In machine dishwashing with conventional builders formulated with Triton CF-32,

glasses, cups, dishes, silverware, pots and pans rinse sparkling clean. Make your own defoaming test with Triton CF-32. Mail the coupon on opposite page for complete formulating information.



TRITON CF-32

A GALLUP REPORT

Shows

More than 7 out of 10 women

want a triple-action

cleaner...and

Pine Oil does the job

The French say "Cherchez la femme"—("Seek out the woman" and you'll have the answer). We asked The Gallup Organization. Inc., to do just that in an effort to determine women's attitudes toward home cleaners. You'll find one of their interesting reactions detailed on the opposite page. It shows that 72% of all women interviewed wanted a triple-action cleaner. We can show you how Pine Oil fills the bill.

1.

CLEANING ACTION—"Ask a silly question, get a silly answer." We asked women what they wanted in a household cleaner. Of course they answered real cleaning action. As part of your formulation, Pine Oil adds a definite emulsifying action for better cleaning action. Pine Oil-based cleaners remove dirt . . . prevent its redepositing on the surface.



2.

DISINFECTANT—Teday and a clean how that a clean how is not necessarily and a clean thress. A cleaner with a high percentage of the Oil will self germs of the Necessarily communicative diseases. That's mother reason to tincorporate in Fig. Oil in your formulation.



3.

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SUPER CAND-DOX®

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Bright Beauty GLASS POLISH & CLEANER and SILVER POLISH—As a glass cleaner (pink color) it applies evenly with little effort, wipes off easily with negligible "powdering" and produces an undeniable "feel" of cleanliness to glass. As a cleaner of silver, it polishes to a high lustre without abhasion and can even correct the abuses of scratchy "quick-polish" inferior products.

Bright Beauty DANCE FLOOR WAX— Does not "ball-up" and gather dirt that imprednates floors with hard spots difficult to remove... free from dusty effects. Its protective quality adds more "floor-years" to expensive ballroom

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Beauty and Durability

Initial appearance is important but for a waxed surface to remain beautiful, it must be durable. Durability depends so only on resistance to abrasion of traffid but even more so on resistance to discoloring marks. Durability should be measured by how long the waxed surface maintains a nice appearance before complete removal and re-waxing is required.

Anti-Slip

Anti-slip, or reasonable safety undertoot does not mean that the qualities of brauty and protection need be sacrificed. The proparbalance—a wax film which is not excessively slippery, yet which is not tacky and does not collect dirt readily—gives the performance that answers the foremost original reason quese of a floor wax—beauty and protection

Water Resistance

Frequent damp mopping or wet traffic car make water resistance very important. Overdoing this quality when no problem exists out of the ordinary, simply increases the difficulty of complete removal or applying multiple coats. Removability must be considered as important as water-resistance under most normal conditions.

Solid Content

The percentage of solid content is not nearly as important as the quality of the solids. Good quality indicates 12% of solids as the answer for most well planned maintenance programs. Two applications of 12% gives better results than one of 18%. "Washed out" floors and other special problems maintain better when more concentrated waxes are used. Overwaxing and resultant greater difficulty in removal for periodic maintenance should be avoided.

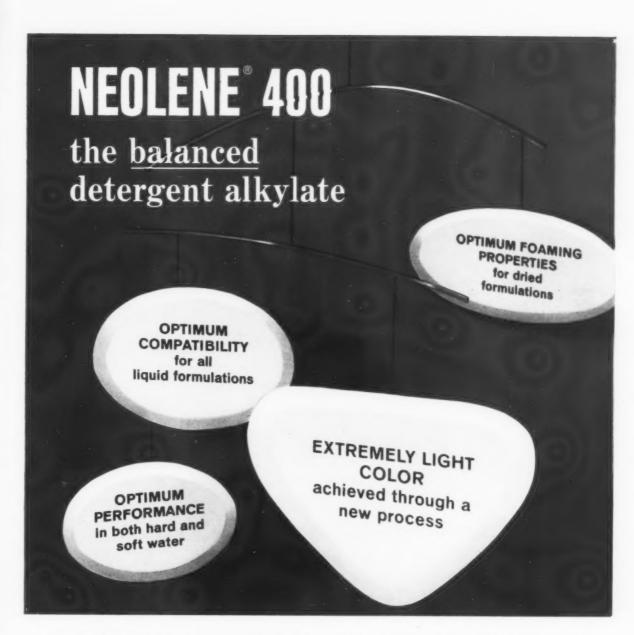
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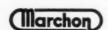
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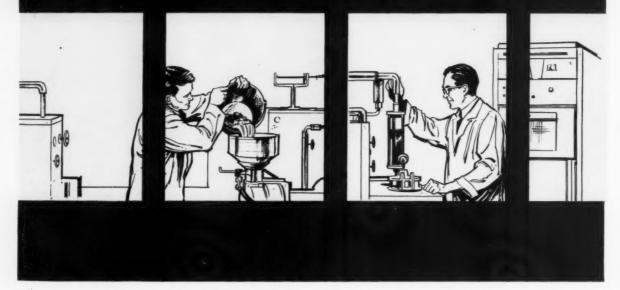
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(Special Mesh)	+ 60	80.0%	+100	min. 90%	
Granular 30/60	÷ 30	0.5%	+ 30	max. 1%	
(Special Mesh)	÷ 60	69.8%	+100	min. 80%	
Granular 30/70	+ 30	0.3%	+ 30	max. 1%	
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Granular 30/100	+ 30	Nil	+ 35	none	
(Special Mesh)	+100	86.7%	+100	min. 85%	
Granular 40/100	+ 40	Nil	+ 40	max. 0.5%	
(Special Mesh)	+100	89.0%	+100	min. 88%	
Granular 40/140	+ 40	0.1%	+ 33	none	
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*California Chemical Company's trademark for its detergent intermediate.

SOAP and CHEMICAL SPECIALTIES

AFTER CLOSING ---

Hazardous Substances Regulations

HE proposed regulations covering the new Federal Hazardous Substances Labeling Act were published April 28 by the Food and Drug Administration. Interested persons may present their views on or before June 28, 1961, in writing to the Hearing Clerk, Department of Health, Education and Welfare, 330 Independence Ave., S.W., Washington 25, D. C.

"These regulations are in many respects unfair to industry, go beyond the intent of the law and must definitely be opposed as far as certain sections are involved," according to the Chemical Specialties Manufacturers Association. CSMA is asking its members to study the regulations carefully and to send comments to association headquarters at 50 East 41st St., New York 17. The association has mailed copies of the proposed regulations to its members and is stressing that there is a 60 day time limit on presenting objections.

Effective date of the enforcement provisions of the law has been extended to Aug. 1, 1961 except for products which are highly toxic, extremely flammable and flammable, the agency announced. These categories are defined in the law.

In its announcement FDA said: "The new law requires consumer protection labeling on common household aids such as waxes, polishes, cleaning agents, bleaches, detergents, and wood finishes and their solvents, if there is a hazard in their use or storage around the home."

The full scope of the law and the impact it will have on almost any operation concerned with chemical specialties and allied fields will be seen from the following passages quoted from the law (191.1 c):

(c) Containers. "Container intended or suitable for household use" means any carton, bottle, can, bag, tube, or any other container which under any customary or reasonably foreseeable condition of purchase, storage, or use may be brought into or around a house, apartment, or other place where people dwell, or in or around any related building or shed, including but not limited to a garage, carport, barn, or storage shed. The term includes containers of such articles as polishes or cleaners designed primarily for professional use, but available to nonprofessional people. Also included are such items as antifreeze and radiator cleaners that, although principally for car use, may be stored in or around dwelling places. Size is not

the only index of whether the container is "suitable for household use." The test shall be whether under any reasonably foreseeable condition of purchase, storage, or use the container may be found in or around a dwelling and thereby expose the persons therein to any hazard.

Under the Act's provisions special precautionary labeling must include the common, usual or chemical name of the hazardous substance or of each component contributing significantly to the hazard; the signal word "DANG-ER" on substances which are extremely flammable, corrosive or highly toxic; the words "WARN-ING" or "CAUTION" on all other hazardous substances.

Also included must be an affirmative statement of the principal hazard or hazards, such as "Flammable," "Vapor Harmful," "Causes Burns," or similar wording descriptive of the hazard; precautionary measures describing the action to be taken or avoided; instruction, when necessary or ap-

§ 191.104 Arrangement of label statements.

The label should be arranged substantially as follows:



Signal word (in 30-point type)

Hazardous substance (in

Principal hazard (in 12-point type)

Precautions to be observed (smaller than 12-point type but clearly legible)

type but clearly legible)

Storage Instructions (smaller than

legible)

12-point type but clearly

First aid (smaller than 12-point

Children (12-point type)

DANGER - POISON

CONTAINS CARBON TETRACHLORIDE

MAY BE FATAL IF SWALLOWED OR FUMES INHALED

USE ONLY IN A WELL-VENTILATED SPACE. AYOID PRO-LONGED OR REPEATED SKIN CONTACT

CALL A PHYSICIAN IMMEDIATELY. IF SWALLOWED, INDUCE YOMITING. IF SPILLED ON THE SKIN, FLUSH WITH PLENTY OF WATER. REMOVE PATIENT TO FRESHAID.

STORE IN A COOL, WELL-VENTILATED PLACE

KEEP OUT OF THE REACH OF CHILDREN

propriate, for first-aid treatment.

The word "Poison" must appear on the label for any highly toxic substance; instructions for handling and storage of packages which require special care in handling or storage; and the statement "Keep Out of the Reach of Children," or its practical equivalent.

The proposed regulations would require, among other things, that:

- 1. The label information appear on the main panel or in proximity to the principal elements within the borders of a square or rectangle;
- 2. The borderline and required information be in a color that is in strong contrast with the background color of the label;
- A skull and crossbones be on "Poison" labels.
- 4. The precautionary wording be in uncondensed Gothic capital letters with the signal words "Danger," "Warning," or "Caution," and "Poison" in 30-point type, or type as large as the largest type appearing elsewhere on the label;
- 5. The statement of principal hazard, the name of the hazardous substance and "Keep Out of The Reach of Children" be in 12-point type; and other required wording be in type no smaller than the smallest, clearly legible type used elsewhere.
- 6. When accompanying literature includes any directions for use, it must also bear the precautionary information required on the container labels.

The proposed regulations also contain definitions of terms; methods of testing substances to determine whether they are hazardous within the meaning of the Act; and exemptions and conditions for obtaining them.

Under the regulations, human experience data would take priority over animal experimentation data in determining the degree of hazard, where the two are in conflict. On the basis of human experience, the proposed regulations would designate the following substances as "highly toxic" substances requiring the signal words "Danger-Poison" on their labels:

Carbon tetrachloride, diethylene glycol, ethylene glycol, kerosene, methyl alcohol, and turpentine.

Also proposed for designation as requiring the word "Poison" on the labels are the 12 substances formerly required to bear such labeling under the Federal Caustic Poison Act, which was repealed by the new law. These include:

- (a) Hydrochloric acid and any preparation containing free or chemically unneutralized hydrochloric acid (HCl) in a concentration of 10 percent or more.
- (b) Sulfuric acid and any preparation containing free or chemically unneutralized sulfuric acid (H₂SO₄) in a concentration of 10 percent or more;
- (c) Nitric acid or any preparation containing free chemically unneutralized nitric acid (HNO_a) in a concentration of 5 percent or more;
- (d) Carbolic acid (C₀H₂OH), also known as phenol, and any preparation containing carbolic acid in a concentration of 5 percent or more;
- (e) Oxalic acid and any preparation containing free or chemically unneutralized oxalic acid (H₂C₂O₄) in a concentration of 10 percent or more;
- (f) Any salt of oxalic acid and any preparation containing any such salt in a concentration of 10 percent or more;
- (g) Acetic acid or any preparation containing free or chemically unneutralized acetic acid (HC_zH₃O_z) in a concentration of 20 percent or more;
- (h) Hypochlorous acid, either free or combined, and any preparation containing the same in a concentration that will yield 10 percent or more by weight of available chlorine;
- (i) Potassium hydroxide and any preparation containing free or chemically unneutralized potassium hydroxide (KOH), including caustic potash and vienna paste (vienna caustic), in a concentration of 10 percent or more;
- (j) Sodium hydroxide and any preparation containing free or chemically unneutralized sodium hydroxide (NaOH), including caustic soda and lye in a concentration of 10 percent or more;
- (k) Silver nitrate, sometimes known as lunar caustic, and any preparation containing silver nitrate (AgNO₂) in a concentration of 5 percent or more.
- (1) Ammonia water and clay preparation containing free or chemically uncombined ammonia (NH₂), including ammonium hydroxide and "hartshorn," in a concentration of 5 percent or more.

Proposed for special desig-

nation as "strong sensitizers" requiring "Warning" or "Caution" labeling are paraphenylenediamine; powdered orris root; epoxy resins systems (products such as glues containing liquid grades of uncured epoxy resins or formulated resin compositions incorporating reactive diluents in one package and amine or other curing agents in a second package); formaldehyde; and oil of bergamot.

The regulations provide exemptions for food, drugs and cosmetics which are under the Federal Feod, Drug and Cosmetic Act.

"Economic poisons" covered by the Federal Insecticide, Fungicide and Rodenticide Act also are exempt. These include any substance or mixture intended for preventing, destroying, repelling or mitigating any insects, rodents, nematodes, fungi, weeds or other forms of plant or animal life or virus except those on man or other animals. Also covered by that law are substances intended for use as plant regulators, defoliants or desiccants.

Lynch Elected Vulcan V-P

David W. Lynch was recently elected vice-president in charge of sales for Vulcan-Associated Container Companies, Inc., Birmingham. Ala. Mr. Lynch, who had been serving as general sales manager, will be headquartered at Birmingham.

Mr. Lynch has been active for the past 20 years in the sale of

David W. Lynch



basic insecticides and chemicals to the pesticide and sanitary supply industries.

New Hysan Building

A new headquarters building adjacent to its plant at 919 W. 38th St., Chicago 9, was opened recently by Hysan Products Co. The building was formally dedicated at an open house party, April 22. Over 400 customers and friends of the company attended the formal opening which took place on the eve of the annual convention and trade show of the National Sanitary Supply Assn. in Chicago. Tours of the plant were conducted by executives of the firm, including Henry Brownstein, president and founder, his son, Joel, Harry Brownstein and Henry Marcus. New and expanded research and development laboratories are being installed in part of the former general offices.

The new building, is of twostory brick construction and is airconditioned throughout. Sales, executive and general offices are located on the second floor of the building.

During the plant tours, visitors were shown new, high speed silk screen lines, acid filling operations, high production rate aerosol filling line, aerosol propellant storage facilities, floor finishes processing equipment and storage facilities, and the firm's two automatic lines for the production of paradichlorobenzene products.

A specially decorated can of aerosol room deodorant was given to each visitor to the plant.

Hoyt Joins GAF

Melvin Hoyt has joined the commercial development department of the chemical group, General Aniline & Film Corp., New York, as a market development engineer, it was announced recently.

Mr. Hoyt was formerly sales manager of Abbey Chemical Corp., Springfield, N. J. Prior to that he was a product development engineer with Celanese Chemical Corp., New York.

William Block Retires

William Block, 56, has retired from Olin Mathieson Chemical Corp., New York, it was an-



William Block

nounced recently. Mr. Block, vicepresident and manager of the chemicals division's Blockson operations, Joilet, Ill., joined Blockson in 1928 as a salesman. Blockson was merged with Olin Mathieson in 1954.

Hooker Elects Three

Hooker Chemical Corp., New York, recently elected three new principal executive officers. Thomas E. Moffitt, company president since November 1957, was elected chairman of the board and chief executive officer. Succeeding him as president is F. Leonard Bryant who had been executive vice-president. Thomas F. Willers, formerly a vice-president of the corporation, has been named executive vice-president.

Mr. Moffitt first joined Hooker in 1930, starting in the sales department at Tacoma, Wash. He later became assistant western sales manager. After a five-year absence, he returned in 1950 as assistant works manager of the Tacoma plant, becoming works manager there in 1951, western manager in 1952, and vice-president in charge of western operations in 1954. In 1956 he was elected executive vice-president and a director, becoming president of the corporation the following year.

Mr. Bryant has been with Hooker since 1935. In 1957 he was elected vice-president in charge of production, and from then until early 1959 when he became general manager of the company's phosphorus division. Mr. Bryant directed production at all Hooker plants. Late in 1959 he was placed in charge of corporate research, marketing, and general development. He was elected executive vicepresident and a director in September 1960.

As vice-president since November 1957, Mr. Willers has been in charge of all four Hooker divisions, corporate engineering, and industrial relations. He has been a member of the board since September 1960. Mr. Willers joined Hooker in 1941.

Data on Plastic Starches

A ten page brochure describing "NeoVac" plastic starches was issued late in April by Polyvinyl Chemicals, Inc., 26 Howley Street, Peabody, Mass. Two products are covered: "NeoVac V21C" intended for conventional packages and "NeoVac V21P" designed for

pressure packaging.



F. L. Bryant



T. E. Moffitt



Kimball Snell President

Election of Cyril S. Kimball as president of Foster D. Snell, Inc., New York consultants, was announced May 8. He succeeds Foster Dee Snell, president and chairman of the board since the firm's incorporation in 1930. Dr. Snell will continue as chairman of the board.

Executive vice-president since 1953, "Cy" Kimball joined Foster Dee Snell in 1926 as an assistant chemist. He has successively served as chief chemist, research director, and vice-president. His fields of activity have included wax products, cleaners, polishes, degreasers, and numerous other chemical specialties.

Mr. Kimball is active in the Waxes and Floor Finishes Division of the Chemical Specialties Manufacturers Association and has served as chairman of the division and as chairman of its scientific committee. He has been a member of CSMA's board of governors. Currently he heads subcommittee IV of A.S.T.M. Committee D-21 on Wax Polishes and Related Materials.

West Product Space Choice

"Tamed Iodine," a product developed by West Chemical Products, Inc., Long Island City, N. Y., has been selected by the Whirlpool Corp., New York, under contract with the Aeronautical Systems division of the United States Air Force, for use in an experimental space console. This announcement was made at the 32nd Annual Convention of the Aerospace Medical Assn., held recently in Chicago.

The experimental feeding space console, developed by Whirlpool, must contain sufficient food and auxiliary equipment to feed two or three men for 14 days at zero gravity (weightlessness), while whirling through outer space. As part of this program, various chemical systems were investigated for control of odor and gas production in waste foods in the compact console. West's "Tamed, Iodines" were chosen for the problem of wet

storage because they are highly effective broad spectrum germicides.

Du Pont Builds Plant

E. I. du Pont de Nemours and Co., Wilmington, Del., recently announced the construction of a new plant at Orange, Texas, to produce high-pressure polyethylene and a new product, "Elvax" vinyl resin, a copolymer of ethylene and vinyl acetate.

The new unit will bring du Pont's overall polyethylene capacity to nearly 400,000,000 pounds. The plant is scheduled for completion in the third quarter of 1962.

"Elvax" vinyl resins are designed primarily for use as a wax additive, wax extended polymer, and adhesive base. Introductory truckload price for the resin will be 55 cents a pound, with a substantial reduction as soon as commercial volume is reached, the company states.

P&G Nine Month Net Rises

Procter & Gamble Co., Cincinnati recently reported consolidated net earnings of \$84,917,948 for the nine months ended March 31, equal to \$2.04 per share.

Pylam Products Moves

Pylam Products Co., manufacturers of custom-blended colors and dyes, early this month moved to its own building at 95-10 218th St., Queens Village, N. Y. The new 7500 square foot plant makes possible a 300 per cent expansion of its production, according to Ralph Reynolds, Pylam president. The new plant features a modern color laboratory and the latest in mixing equipment.

Pylam Products Co. was founded 45 years ago, and claims to be the largest manufacturer of colors for the small volume user of less-than-drum-size quantities. The firm also announced it has just issued a new price list and catalog covering colors for soaps and detergents, certified colors, wax and ink colors.

Frederick Smither Dies

Frederick W. Smither, formerly associated with the Bureau of Standards, and secretary of Committee D-12 of the American Society for Testing Materials for many years, died March 8, at Mobile, Alabama.

Textilana Names Two

Textilana Corp., Hawthorne, Calif., recently announced the appointment of L. J. Hadobas, district sales manager for southern California, and B. B. Westbrook, district sales manager for northern California, Seattle and Portland.

Mr. Hadobas was formerly

in charge of west coast sales for Emery Industries, Inc., Cincinnati, O. Mr. Westbrook has extensive experience in research and production of surface active chemicals. Textilana Corp., established in 1947, produces a broad line of surface active chemicals and organic intermediates.

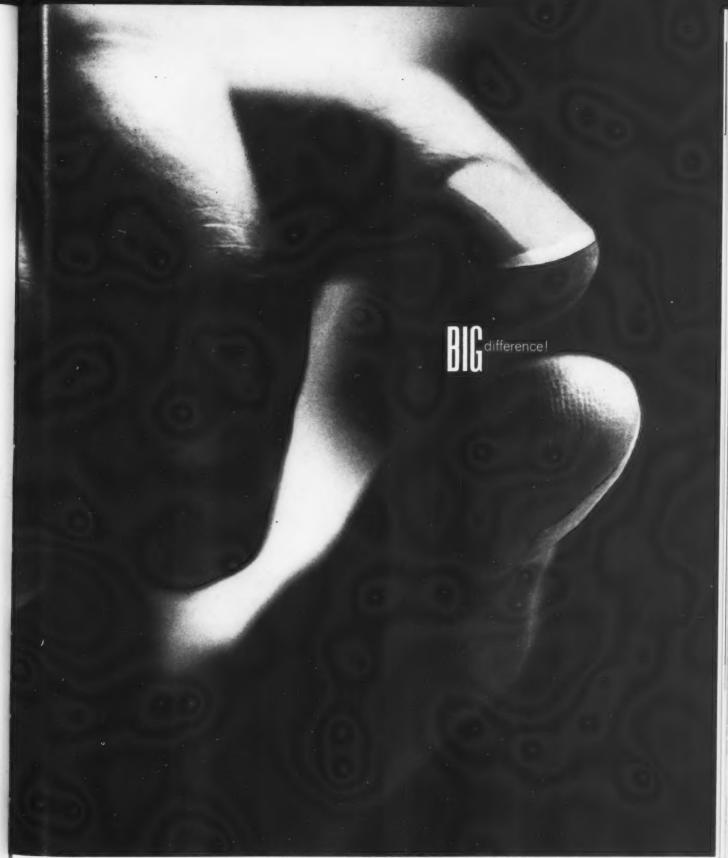
B. B. Westbrook



L. J. Hadobas



SOAP and CHEMICAL SPECIALTIES



Take a pleasing fragrance. Take one not so pleasing. The difference between them? Infinitesimal, yet enormous. It's like two almost identical keys: a single notch makes the difference between opening and not opening a door. So with fragrance. The smallest distinction is often

thirty-eight years of perfume oil experience, can open the door to more sales for you by re-styling the fragrance of your product or by creating a new fragrance for a new product. See the man from Felton. He could make the little difference that makes the big difference! the key to a new and appealing perfume creation. Felton, with over Felton Chemical Company, Inc., 599 Johnson Avenue, Brooklyn 37, N.Y.





COLORLESSNESS begins with Emery Oleic Acids

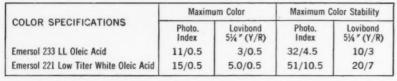
To obtain a light color in any product, it is easier to start with white or colorless basic ingredients. It's costly and often impossible to remove color later. Emery gives you the colorless raw materials you need. — Emersol® 233 LL Oleic Acid and Emersol 221 Low Titer White Oleic Acid.

When you start with colorlessness, you can add as little or as much color as you wish. And the remarkable color

stability of Emersol Oleic Acids, as assured by product specifications, minimizes color changes during processing and throughout shelf life. If the oleic acid you are now using cannot meet these specifications, why not let us send you samples that can, time after time? It costs you no more for this extra quality.

Write Dept. S-5 for samples or 20 page comprehensive booklet "Oleic Acid Emeryfacts."

A little extra everything except price





Emery Industries, Inc., Carew Tower, Cincinnati 2, Ohio . Vopcolene Division, Los Angeles, Calif. . Emery Industries (Canada) Ltd., London, Ontario . Export Division, Cincinnati

P₂O₅ CONTENT

Sodium Hexametaphosphate provides compounders with the *highest* phosphate content, the *highest* water softening capacity and the *highest* solubility of all the sodium phosphates.

Polyphos, the Błockson brand Sodium Hexametaphosphate, is formulated for use wherever a glassy phosphate is indicated.

Compounders of commercial dish, dairy and laundry detergents favor Polyphos because it retains its effectiveness throughout the cleaning operation.

Blockson Polyphos is the most effective—and lowest cost —sequestrant. It doesn't consume the alkalis in the softening process. Also, alkali solution turbidity is minimized.

The "infinite solubility" of Polyphos allows you to cram all the Polyphos you wish into your formulation if your idea is high efficiency PLUS mildness. And yet, its 67% P_2O_5 content gives you room for more alkali if you need it to "chop up" proteins, milk solids, etc.

A few more PLUS properties: Peptizing action that minimizes graying and film. Synergism that assists your wetting agents. High compatibility with nonionics and with the widest variety of other components.

These are reasons why a growing number of modern detergent compounders regard Polyphos as their most important single ingredient. For a sample and data bulletin, write Blockson—"The Phosphate people."

MODERN DETERGENTS MEAN PHOSPHATES AND PHOSPHATES MEAN BLOCKSON

CHEMICALS DIVISION Olin

Blockson Chemicals • Olin Mathieson Chemical Corporation • Patterson Road • Joliet, Illinois

MAY, 1961

25

GEP Ri Surfactants help detelgent Sales



IGEPON surfactants give compounded consumer products the superiority they need to outsell competition. That's because each one has earned its place in this versatile series by outstanding performance and adaptabil-

performance and adaptability in a variety of detergent formulations. IGEPON-based products wash woolens, synthetics, and other textiles clean and soft (little rinsing required) — make dishes and glassware sparkle—leave hair gleaming and manageable—and do a good job of cleaning practically everything in the house.

IGEPON surfactants are particularly effective in soil sus-

pension (excellent anti-soil-redeposition properties) and in Jime-soap dispersion (inhibit precipitation of hard-water scum). In wetting and softening action, they are "tops." In foamability, they vary from the high-foaming—for shampoos—to the low-foaming—for mechanical dishwashing compounds. They are compatible with soap and perform well-in all kinds of water—cold, hard, even salt water. Since they are as kind to the skin as fine toilet soaps and have a natural soapy feel, IGEPON surfactants are used to manufacture improved detergent bars. So—if you are in the quality market with

shampoos, cool-water wool washes, detergent bars, general-purpose cleaners, etc., find out which IGEPON surfactant can do the most to help your product win favor with consumers. Ask any Antara office for information, samples, and technical assistance.



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Portland, Ore. • San Francisco • Los Angeles. IN CANADA: Chemical Developments of Canada Ltd., Montreal

IGEPON surfactants manufactured by General Aniline & Film Corporation are sold outside the United States, by distributors all over the world, under the trademark "FENOPONE,"



PO SODIUM SILICATES - KASIL POTASSIUM SILICATES - METSO SILICATE ALKALIS BASIC CHEMICALS FOR FORMULATING DETERORING AND CLEANING

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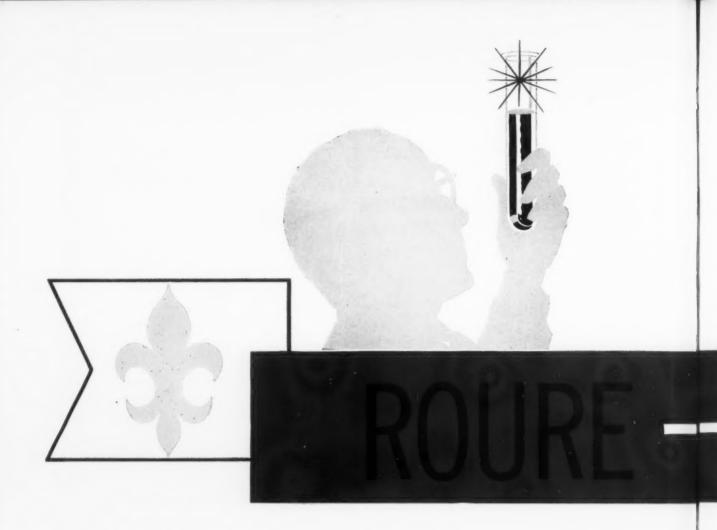
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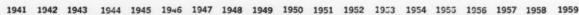
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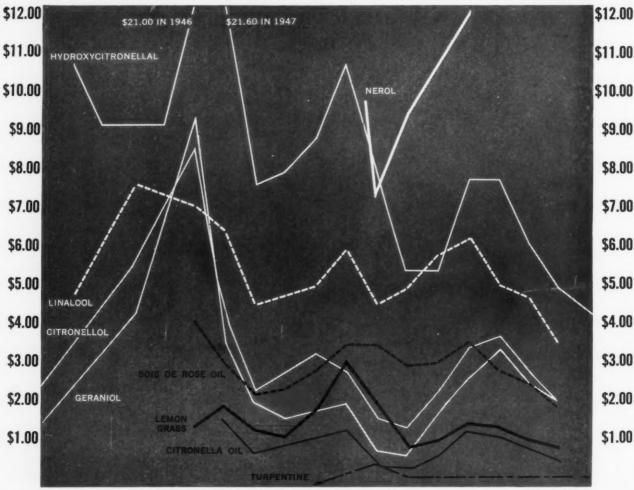
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ESSENTIAL OILS AROMATIC CHEMICALS

AEROSOLS

48





1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957

STABILIZE YOUR PERFUME COSTS

The historic unpredictability of perfume costs need no longer apply to your perfuming operations. No longer need you "worry" your perfume supplies, stretching them thin in certain products as costs suddenly cycle upwards, avoiding their use entirely in other marginal products.

The new Firmenich-Glidden Aromatics, derived from an abundant domestic source, make it possible for you to use the finest quality aromatics as freely as you wish, in any product you wish, with complete confidence that sudden changes in price, quality, and foreign supplies will not disrupt your manufacturing and marketing program.

The economic advantages provided by Firmenich-Glidden Aromatic Chemicals are perhaps best illustrated by reviewing the costs of these same aromatic chemicals as derived from natural sources. The figures demonstrate most forcibly the economic burden which the uncertainties of supply, compounded by natural and artificial restrictions, have placed upon the aromatics consuming industry.

Write for further information on these exceptional new aromatics. Ask for samples in the commercial quantities you need.



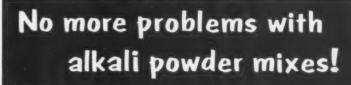


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applications:

ELECTROLYTIC DEGREASING COMPOUNDS

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DISH WASHING COMPOUNDS

CONCRETE CLEANERS

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.... which are 100% active and represent the anhydrous portion of the Miranol amphoteric surfactants before neutralization. They are intended for incorporation into dry powder alkali mixtures where the dispersion of aqueous surfactants present a problem. The Miranol amphoteric anhydrous acids can be easily dispersed without spray nozzles. These new products can be poured directly into the powder mix and the mixture made in tumblers. No blade or ribbon mixers are required. Lumps will break up readily and complete distribution is obtained with heretofore unknown ease.

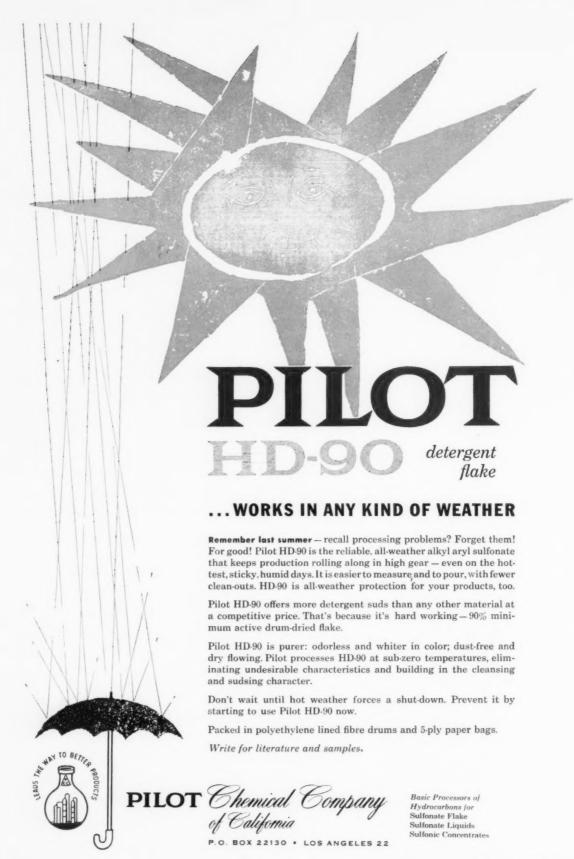
The Miranol amphoteric anhydrous acids feature tremendous economy and outstanding stability. They will not discolor caustic soda or caustic soda mixes. Recommended additions for dramatic surface tension reduction of alkali powder mixes range from ½ to ¾%. The Miranol anhydrous acids are not corrosive. Though fairly viscous when cold, they will flow easily when warm. The Miranol amphoteric anhydrous acids may also be neutralized to form sodium, potassium, ammonium and amine salts.

Write for samples and technical literature (neutralization equivalents)

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Agents in principal cities throughout the world

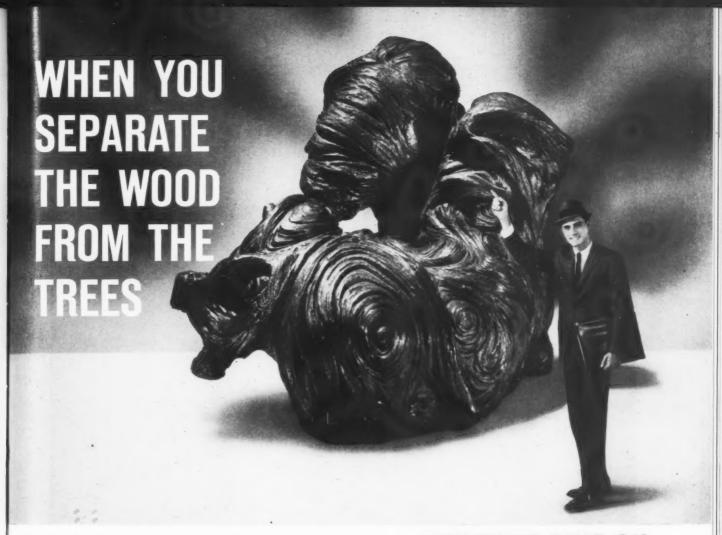
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there's a unique chemical here ... NEWPORT PINE OIL

Maybe you think of Pine Oil today as a Detergent or Disinfectant. Because of its wide use in these fields, your conclusion is factual, but has this overshadowed the fact that Pine Oil is a much more versatile chemical?

Look at its general physical and chemical properties here and you'll discover — we hope to your surprise — why NEWPORT Pine Oils are also used as: *Mining Frothing Agents, Textile Wetting Agents, Pigment Grinding Aids, Gelatin Retarders* and *Flow Viscosity Improvers*.

Its uses are not limited to one field, but include soaps and cleaners, paints and varnishes, cutting oils, metal chrome polishes, essential oils, ore flotation, pharmaceuticals and leather processing.

Pine Oil, obtained from wood stumps, is completely oil soluble. On emulsification, it is also completely water miscible. It is outstanding in reducing surface tension and is an excellent solvent. It is non-toxic under normal conditions and, last but not least, don't forget its fragrant quality where odor masking is necessary!

GENERAL PHYSICAL AND CHEMICAL DATA OF TYPICAL NEWPORT PINE OIL

	Weight Per Gallon	Specific Gravity	Refractive Index	Engle	r Distillati	on °C.	Flash Point	Kauri Butanol	Polymerization
	@ 15.5° C. (lbs.)	@ 15.5° C./15.5° C.	@ 20° C.	5%	50%	95%	°F. (open cup)	Value*	Residue
G.N.S. No. 5	7.76	0.932	1.482	200	212	220	167	Inf.	0.5%

CITY

*Basis: Toluene = 105



NEWPORT INDUSTRIES DIVISION

HEYDEN NEWPORT CHEMICAL CORPORATION 342 Madison Avenue. New York 17, New York

Gentlemen: Please send me Booklet No. 4 detailing information on Newport Pine Oils.

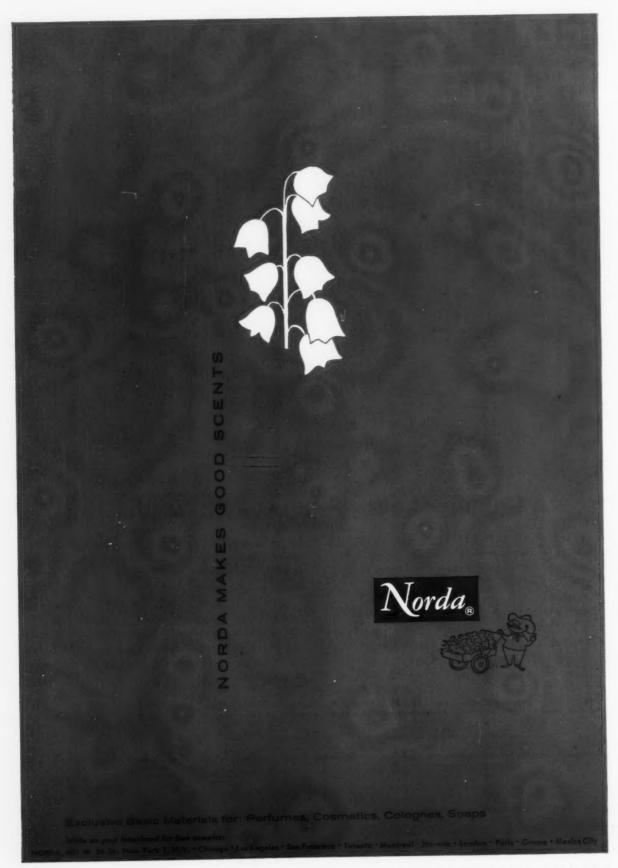
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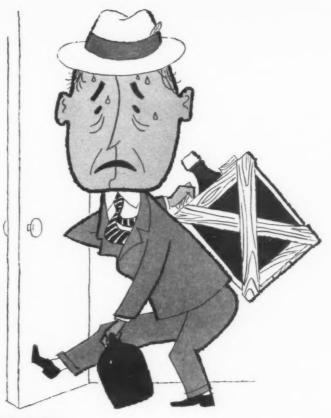
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- Safe for fabrics! Minimize tendering, never cause pin-holing.
- Easy to measure and use! Eliminate pre-diluting and pre-dissolving.
- Mistake-proof! Over-use can't cause damage.
- Compact to store! Eliminate breakage, spillage.
- Calcium-free! No hard-water soapspecking. Soaps fully utilized.

CDB CHLORINATED DRY BLEACH

for bigger profits, easier selling!

If you're trying to keep your toe in the door in the highly competitive, thinmargin hypochlorite business . . .

Or, finding it tough to sell a dry bleach that is less than fully effective, difficult to use, causes pin-holing . . .

Then it's high time you looked into the new opportunities CDB Chlorinated Dry Bleach offers you. Even if you are not now making any bleach product, there are excellent profit potentials for you right now in selling commercial laundries, coin-op installations and home-laundry bleach.

FMC has a full-time staff of specialists ready to work with you to help you capitalize your opportunities in this growing business. We'd like to discuss the market potentials with you, tell you how we can help you with vital selling facts, and suggest starting-formulations for some interesting new products. Call or write for prompt action!

mixed shipments with FMC® PHOSPHATES

For extra profits you can save by combining CDB's in mixed truckloads with any of our comprehensive range of sodium and potassium phosphates.

Putting Ideas to Work



FOOD MACHINERY AND CHEMICAL CORPORATION
Mineral Products Division

General Sales Offices: 161 E. 42nd STREET, NEW YORK 17

"turn on" more detergent sales with DEMA liquid controllers!



Stainless steel construction makes this Dema proportioner adaptable to a variety of products. Single push-button operation with anti back-siphoning feature. Attaches to faucet, connects to bulk container thru polyvinyl tube, gives perfectly proportioned mixture. Resets automatically to clear water.

MODEL #183: Fixed Proportion
MODEL #184: Adjustable Proportion

Here's a real heavyduty aluminum alloy and stainless steel dispenser designed for waterless hand cleaners and protective creams. Holds factoryfilled disposable slip cover cans of any depth. Self-priming, self-lubricating suction pump is pushbutton operated. No gears or levers to get out of order.



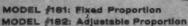
MODEL #310-4: 4¼" Outside Diameter Cans MODEL #310-5: 5½" Outside Diameter Cans



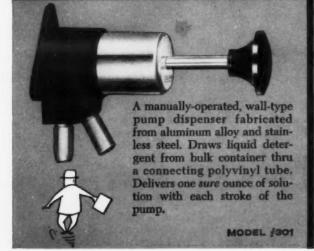
This new dual proportioner by Dema does double duty, selectively, dispensing two liquid products. One pushbutton controls detergent... the other disinfectant. Attaches to faucet and draws fluids from bulk containers thru polyvinyl tubing. Has anti-back-siphoning feature and automatically resets to clear water.

MODEL #189: Adjustable Proportion

A stainless steel constructed automatic liquid controller suitable for a variety of products. Single pushbutton operation. Attaches to faucet, draws liquid concentrate from any size container, dispenses it accurately in any desired proportion. Resets automatically to clear water.









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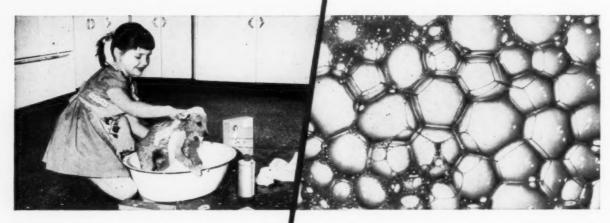
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N.F., 85%

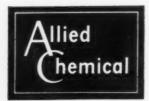


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FROM WARTIME TO PEACETIME USE



Napalm incendiary bombs, used in the Korean War for skip-bombing, are compounded of Oleic Acid, Coconut Fatty Acids, and Naphthenic Acid. Similar formulations are now used to treat non-productive oil wells, to clean the wells, and promote the flow of oil.



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Below are facts you should know about two Fatty Acids produced by A. Gross. Why not write for samples and additional information on the Fatty Acids we produce. Send for the latest edition of the brochure "Fatty Acids in Modern Industry." Address Dept. S-3,

	DISTILLED TEARIC ACID GROCO 55 riple Pressed U.S.P.	DISTILLED COCONUT FATTY ACID GROCO 24 Regular
Titre		22° – 25°C.
Color 5¼" Lovibond Red Color 5¼" Lovibond Yellow Color Gardner 1933 Unsaponifiable Saponification Value Acid Value Iodine Value (WIJS)	0.5 max. 1.5 max. 209 — 212 208 — 211	1.5 max. 12 max. 2 max. 0.50% max. 260 — 270 260 — 270 8 — 12

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a. gross



For over 36 years, Industry has looked to West End Chemical Company as a dependable source of chemicals. Soda ash, sodium sulfate, salt cake, quicklime, hydrated lime and borax are included in the product line.

Located in the Mojave Desert some 190 miles northeast of Los Angeles, West End's Searles Lake location has long been recognized as one of the world's largest sources of inorganic salts. Searles Lake, which is now dry, was formed through the ages by waters carrying small quantities of the various salts in solution from the Sierra mountain range to what was then an inland sea. Subsequent volcanic activity blocked off the flow of these waters, leaving the lake to evaporate to its present day level. These acts of nature caused enormous quantities of inorganic salts to be left in the Searles Lake Basin.

West End's connection with Searles Lake dates back to that period following World War I when numerous companies were experimenting with various processes for extracting mineral wealth. After a number of years of experiment and research, the Hellmers Process (H. D. Hellmers, now West End Vice-President, Production) was adopted, and it is still the basis for today's operations.

Briefly described, the Hellmers Process involves the pumping of brine from the lake, treating the brine with carbon dioxide gas to form sodium bicarbonate which precipitates out. In the carbonation phase of the process, the borates contained in the brine as sodium metaborate and sodium tetraborate are converted to the more acid

higher borates of sodium by the reaction of CO₂, eliminating part of the Na₂O by forming NaHCO₃. After separation of sodium bicarbonate from the carbonated brine, the latter is mixed with additional untreated brine from the lake in such proportions that practically all of the borates in the mixture are in the form of sodium tetraborate. This results in a state of supersaturation with respect to sodium tetraborate, which is crystallized from the mixture by the simple process of cooling and agitating. After settling, the brine is sent to the sodium sulfate recovery units and the settled borax recovered and refined. The bicarbonate recovered in the first step of the process is filtered, washed free of impurities, and converted to various grades of soda ash.

For a number of years soda ash and borax were West End's sole products. In 1938, installation of a hydrator made it possible to market hydrated lime.

In 1955, encouraged by the growth of the kraft pulp and detergent industries, West End made its first offering of salt cake and anhydrous sodium sulfate. In the intervening years, West End has become a major national source of these chemicals.

The new West End soda ash plant now under construction at a second natural source in Wyoming is scheduled on-stream in 1962. Produced under the same uniform management and controls of the parent plant, high quality West End soda ash from Wyoming will be available to industry in an ever-broadening market.

WEST END CHEMICAL COMPANY
Division of Stauffer Chemical Company

Stauffer
CHEMICALS

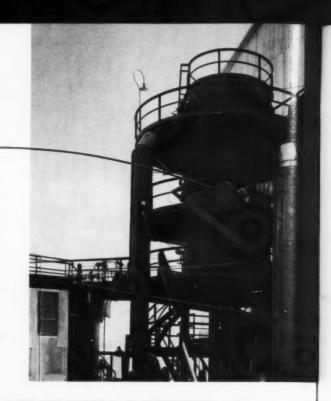
636 California St., San Francisco, Calif. • Plant, Westend, Calif.

SODA ASH • BORAX • SODIUM SULFATE • SALT CAKE • HYDRATED LIME • QUICK LIME

WEST END SODIUM SULFATE

Since mid-1955, West End has been recognized as a major producer of high-quality anhydrous sodium sulfate. Original production capacity of sodium sulfate at the West End plant was 50,000 tons annually, but with completion of a second sulfate unit in the fall of 1956, production capacity was increased to 120,000 tons per year With completion of a third unit in 1961, capacity will increase to 200,000 tons per year. Today, West End is solidly qualified to handle the complete requirements of its customers dependably, economically and efficiently.

High solubility, high purity, low heavy metal content, and pure white color are the distinctive features of West End anhydrous sodium sulfate. It is used in a varied number of industrial processes, with major buyers being detergent manufacturers and chemical compounders.

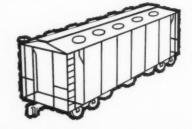


ANHYDROUS SODIUM SULFATE

TYPICAL ANALYSIS	TYPICAL SCI	REEN SPECI	FICATIONS
Typical % Guarantee % Na ₂ SO ₄ 99.57 -99.87 . 99.5 Min.	Screen No.	Coarse %	Fine %
NaCl	+ 20	Trace- 0.5	0
B ₂ O ₃	+ 30	Trace- 2.0	Trace
CO ₂	+ 40	4.0- 8.0	0.4
H ₂ O	+ 50	12 -20	2.0
Insoluble	+ 60	25 -35	6.0 to 12.0
Fe 1 PPM 3 PPM Max. As 1 PPM 3 PPM Max.	+ 80	40 -52	12.0 to 15.0
Cu+Zn Not Detectable	+100	56 -68	21.0 to 26.0
Solution Clear	+150	70 -75	30.0 to 34.0
Color White	+200	80 -92	44.0 to 57.0
Density: Struck 70-75 lbs./cu.ft. Tapped 83-87 lbs./cu.ft.	-200	8 -20	56.0 to 43.0

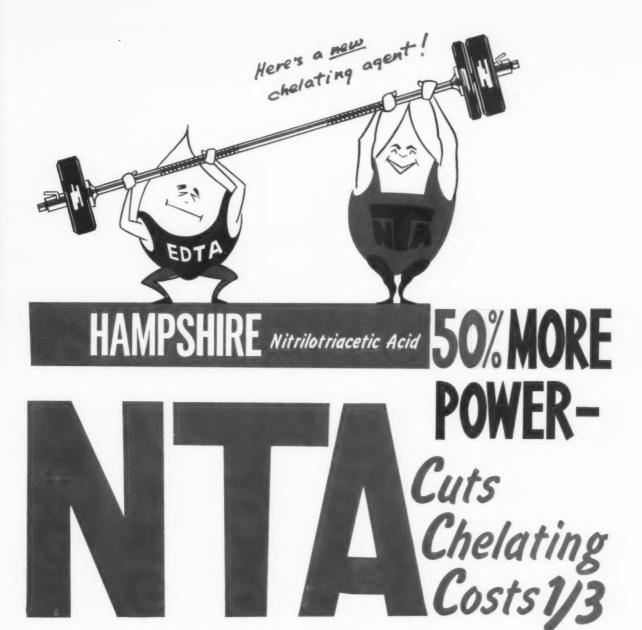
WEST END ANHYDROUS SODIUM SULFATE IS MOVED ECONOM-

ICALLY at great distances by truck, ocean vessel or by West End's own fleet of leased covered hopper rail cars. West End schedules transportation to assure customers of delivery on scheduled delivery dates.





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These two muguet type specialties of HAARMANN & REIMER are now freely available from our own production.

Invaluable in compositions for soaps and cosmetics.



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For pinpoint properties in your products, consider Monsanto surface-active agents:

4 NEW STEROX NONIONICS— ALKYL PHENOL CONDENSATES

Now, in many types of products, you can "zero in" even closer on a number of properties to boost performance and sales appeal. Monsanto has added four new alkyl phenoltype nonionics to its STEROX line of surface-active agents.

New STEROX DF, DJ, NJ and NL were developed to give consistent performance and genuine economy. They are stable in acidic and alkaline media, even at elevated temperatures, and are effective in both hard and soft water. They provide *specific advantages* where low odor, light color and good detergency are wanted; and also where emulsification, wetting, foaming characteristics or liquid-solid contact is important.

To discover the specific advantages to you, check the table shown here. Then use the convenient coupon to get more information, samples and technical help. Or simply call your nearby Monsanto representative or service-minded distributor.

MONSANTO CHEMICAL COMPANY Inorganic Chemicals Division Dept. 3029-W, St. Louis 66, Missouri



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Name												 	 					 			* 1	
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Ethylene oxide adduct of:	phenol
Color, APHA (typical)	180
pH, 1% solution (typical)	7.0
Cloud Point, °C. (1% solution)	below 0
Foam, Ross Miles, cm. (0.1% @ 50°C.)	
25 ppm water, inst.	2.0
after 5 min.	1.9
150 ppm water, inst.	1.8
after 5 min.	1.7
Surface Tension (0.25% @ 25°C.)	32.7
Interfacial Tension	
(0.25% @ 25°C.)	2.3
Spreading Coefficient	-0.5
Draves Wetting Time, sec.	
(0.25% @ 25°C.)	75

Solubility... Miscible with water in all proportions. Soluble in many nonpolar solvents. Functions well wherever a surfactant would be desirable in oils or aliphatic solvents.

Other Promising Characteristics... Valuable intermediate for sulfation. Conversion produces high-foaming active ingredients especially suited for liquid detergents. Unreacted, it is a low-foaming surfaceactive agent for use per se and an excellent emulsifier.

Typical uses... In liquid detergents, emulsifiable toxicant concentrates, metal cleaning and treating compounds; as a paper rewetting agent and an emulsifier in a variety of applications.



STEROX



STEROX

Monsanto

DJ

Ethylene oxide adduct of:	phenoi	
Color, APHA (typical)	100	
pH, 1% solution (typical)	7.0	
Cloud Point, °C. (1% solution)	40	
Foam, Ross Miles, cm. (0.1% @ 50°C.)		
25 ppm water, inst.	2.9	
after 5 min.	2.5	
150 ppm water, inst.	2.8	
after 5 min.	2.5	
Surface Tension (0.25% @ 25°C.)	34	
Interfacial Tension		
(0.25% @ 25°C.)	1.9	
Spreading Coefficient	-1.4	
Draves Wetting Time, sec. (0.25% @ 25°C.)	12	
Detergency, unbuilt @ 60°C., 0.2% in 150 ppm water, as % lauryl sulfate	102	
as 70 lauryi Sullate	102	

Solubility...Soluble in water and most polar solvents, but generally insoluble in nonpolar solvents.

Other Promising Characteristics... Low foam and high chemical stability are combined with effective functional properties and ease of use. Lack of odor typically associated with this type of surfaceactive material makes perfuming easier—helps build market appeal for your products.

Typical uses... In liquid and powdered detergents, chemical processing, textile dyes and scouring agents, and numerous compounds for metal cleaning and treating, paper de-inking, felt washing and other wet processing operations.

MJ

Ethylene oxide adduct of:	nonyl phenol
Color, APHA (typical)	50
pH, 1% solution (typical)	7.0
Cloud Point, °C. (1% solution)	54
Foam, Ross Miles, cm. (0.1% @ 50°C.)	
25 ppm water, inst.	12.9
after 5 min.	8.3
150 ppm water, inst.	12.7
after 5 min.	8.0
Surface Tension (0.25% @ 25°C.)	34.8
Interfacial Tension	
(0.25% @ 25°C.)	2.9
Spreading Coefficient	-3.2
Draves Wetting Time, sec.	
(0.25% @ 25°C.)	5
Detergency, unbuilt @ 60°C., 0.2% in 150 ppm water,	
as % lauryl sulfate	102

Solubility... Soluble in water and most polar solvents, but generally insoluble in nonpolar solvents.

Other Promising Characteristics... Exceptionally light colored, this "wheel horse" nonionic is effective per se as an emulsifier and as a light-duty detergent for hard surfaces. In combination with SANTOMERSE alkyl arylsulfonates, it exhibits foamstabilizing effects, and produces a denser foam than that obtained with alkyl aryl sulfonates alone.

Typical uses... In liquid and powdered detergents, insecticides, and in numerous compounds for textile, paper and leather processing, chemical processing, petroleum acidizing and secondary recovery.

Ethylene oxide adduct of:	nonyi phenoi
Color, APHA (typical)	100
pH, 1% solution (typical)	7.0
Cloud Point, °C. (1% solution)	76
Foam, Ross Miles, cm. (0.1% @ 50°C.)	
25 ppm water, inst.	15.5
after 5 min.	8.8
150 ppm water, inst.	15.6
after 5 min.	8.6
Surface Tension (0.25% @ 25°C.)	36.2
Interfacial Tension	
(0.25% @ 25°C.)	4.3
Spreading Coefficient	-6.0
Draves Wetting Time, sec. (0.25% @ 25°C.)	7
Detergency, unbuilt @ 60°C., 0.2% in 150 ppm water,	
as % lauryl sulfate	103

Solubility...More soluble than Sterox NJ. Especially useful in solutions containing inorganic salts or SANTOMERSE® alkyl aryl sulfonates.

Other Promising Characteristics... Primarily designed for use in liquid detergents. Exceptionally valuable for this application in combination with Monsanto TKPP. Effective per se as an emulsifier and light-duty detergent for hard surfaces. In combination with SANTOMERSE alkyl aryl sulfonates, it exhibits foamstabilizing effects and produces a denser foam than that obtained with alkyl aryl sulfonates alone.

Typical uses... In liquid detergents, industrial cleaners, textile scouring and soaping-off compounds, many specialty products; as a post-polymerization latex paint stabilizer.

For some it is this: swell of sea, sweep of sky, sting of salt, boom of spray, and the sleek hull winging...a man's game in a fearnaught world. For others no less quick or bold, adventure comes in other challenges to mind and muscle. But to each of us, it carries its own cargo of sights and sounds and smells that move us and quicken our heartheats in response and recognition. If you seek to pluck adventure from the air and put it in a flask or flacon, Givaudan can help you. No one knows more about the uses of fragrance, or its ever-changing fashions. And no one has helped so many searchers for a special, unique fragrance find their perfect answer. Givaudan-Delawanna, Inc., 321 West 44th St., New York 36 First in the world of fragrance

WHAT IS THE FRAGRANCE OF ADVENTURE

as the editor sees it...

LABEL REGULATIONS

New proposed regulations for enforcement of the recently passed Federal Hazardous Substances Labeling Act have been issued by the Food & Drug Administration. That these new regulations are *eminently unsatisfactory* to industry, we can state bluntly without fear of contradiction. That they will bring on a knockdown, drag-out dog fight between FDA and industry, we are quite certain. Hearings will be held in about a month and we feel certain that the fur will fly.

At first examination, it is obvious that the regulations in effect re-write the law as passed by Congress inasmuch as they go far beyond the intent and scope of the law. Label requirements for household chemical specialties also go far beyond similar regulations required for food, drugs and cosmetics. And the latter, FDA should be reminded, are for use on the human body; the chemical specialty products are not. In fact, the new proposed regulations could make about half of the household chemical products on the market today just about unsalable.

The chemical specialties industry has always recognized its responsibility in labeling its products and cooperated fully with FDA and legislative officials in writing the law. But practically all recommendations by industry have been ignored by FDA in writing the proposed regulations. A complete disregard for manufacturers and vendors of household chemical products is quite apparent, a disregard which does nothing to further the interests of health protection. In most respects, the proposed regulations are unnecessarily arbitrary and harsh; in others, they approach the ridiculous.

The proposed regulations obviously go beyond the scope and intent of the law, so much so in fact that it appears that FDA and not Congress passed the law. And as we said, FDA has invited a real old-fashioned dog fight. We have a hunch that they will get it!

NEW COMPILATION

A new Compilation of Economic Poisons (Pesticides) Laws has been announced by the Chemical Specialties Manufacturers Association. The new compilation has involved a year of intensive effort by the Association staff and its attorneys. It is designed to replace the now outmoded and obsolete previous compilation of laws and regulations issued some years ago by CSMA. The new edition approximates 500 pages of both state and Federal pesticide laws and regulations and brings together in one volume all laws of interest to manufacturers of insecticides, disinfectants, fungicides, rodenticides, sanitizers, and allied products. All laws and regulations up to May 1, 1961 are included. Supplements covering changed and new laws and regulations will be issued from time to time, probably at one-year intervals. The new volume is available to nonmembers of CSMA as well as to members. Copies are expected to be available for shipment after June first. A greatly needed work, this new compilation of laws, for which CSMA is to be commended.

TALLOW

Tallow prices have zoomed upward over sixty per cent. In the old days, this would have brought something akin to consternation among soapers, but today with seventy per cent of the market in detergents, the impact of the price rise is lessened. Nevertheless, the effects on numerous smaller industrial soapers and on all toilet soap producers is sufficient to cause concern. Makers of toilet soaps undoubtedly will be forced to raise prices. But what of the smaller producers of industrial soaps? If they boost prices, their customers will switch to detergents. They are sort of between the devil and the deep blue sea.

They tell us that the tonnage of tallow which has been going to Russia during recent months has been unusually heavy. Possibly some of it is being shipped to China for upgrading as food.

Give her the detergent she wants...



Custom-blend with TERGITOL Nonionics

To be certain that the products she buys are yours, custom-blend your detergents with TERGITOL nonionics. The product that outcleans and outshines competition is the one she'll favor; and TERGITOL nonionics can give your detergent the properties that fill all her exacting demands.

From Carbide you can obtain nonionics with properties ranging from complete oil solubility to complete water solubility. Also, you can obtain information on blending these nonionics to give you the precise properties you want for your specialty products.

Here are two nonionics that should be of particular value to you—

TERGITOL NPX—a nonyl phenyl polyethylene glycol ether containing 10.5 moles of ethylene oxide, is ideal for the base of your all-purpose detergents and wetting agents. Its cloud point is in the 60 to 65°C. range, and it is compatible with soaps and other surfactants. TERGITOL NPX is soluble in many alcohols, ketones, glycols, glycol-ethers, and esters; and its stability is not affected by acids, bases, or salts.

TERGITOL TP-9—with 9 moles of ethylene oxide and a cloud point in the 51 to 56°C. range, is similar to NPX in its usefulness, and is designed for use in water at less than 125°F.

The Carbide Technical Representative in your area will be happy to discuss your special requirements with you. Give him a call and see what a customized formula can do for your products. Or write: Union Carbide Chemicals Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, New York.

TERGITOL and UNION CARBIDE are registered trade marks.

UNION CARBIDE
CHEMICALS COMPANY



With a soy bean crop failure and other food shortages, the Chinese are reported in dire need of fats. But irrespective of the causes behind the price rise, American soap makers are considerably concerned. Will the price continue upward and if so just where will the smaller soapers fit in the price squeeze? And how much will toilet soap makers be forced to raise prices? How long will the Russians continue their large scale buying? One guess is probably as good as another.

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FLOORS

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Spraying floors with detergent and then mopping is a cleaning technique which has been found unusually successful. Over 200 eastern supermarkets are now using this method and find it eminently satisfactory, according to one of the supermarket publications. It is even said that cleaning can be carried on during regular store hours without interfering with business. But then the article went on to state that this system of cleaning produces a finish which obviates the need for waxing.

And at that point our temperature went up a degree or two. Maybe the cleaning job does leave the floor nice and shiney, although we have our doubts unless it is buffed. But any such finish, wholly unprotected, would last in the average supermarket all of ten minutes. Traffic and shoe grit would take their toll quickly. The useful life of the floor would be drastically curtailed. A wonderful idea for the flooring suppliers, but it could prove expensive for the supermarkets.

Why this emphasis on no-waxing when all technical evidence proves conclusively that waxing is vitally necessary? And especially in heavily traveled areas. Ruination of the floor covering has been shown definitely to be the alternative.

* * * * *

GOOD BUSINESS

As far as we can determine, the first quarter of 1961 was a good one for most chemical specialty manufacturers. If there has been a recession, its effects have been restricted to a minority in the industry. Where we have heard complaints about the status of business, they have come altogether from firms producing products for the retail trade in small packages. The industrial end of the business has been uniformly good, exceptionally good in numerous instances.

This has been particularly true in products used primarily in industrial cleaning and maintenance.

Behind this demand for chemical maintenance products has been noted a marked decline in activity and employment in numerous leading industrial centers. Normally, this should mean a drop-off in demand for maintenance materials. But thus far, the drop-off has not come if we can believe reports we hear. Maybe more industrial establishments are becoming cleaner, maybe the vogue for industrial sanitation is catching on faster than we think. Something surely is taking up the slack. And when the big industrial areas get back on top production schedules again, the maintenance materials business could really show expansion. At any rate, we hope so!

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ADVERTISING

Off hand, we would say that Paul Rand Dixon, new chairman of the Federal Trade Commission, means business when he warns advertisers about deceptive advertising. His blunt warning recently in an address before the Association of National Advertisers left his listeners slightly stunned. As a former chief counsel for the Senate Anti-Monopoly Subcommittee, he is well equipped to be a tough FTC chairman. And we have a hunch that he intends to be tough.

Granted that false and deceptive advertising has been characteristic chiefly of small backalley firms. But not always. In fact, the names of too many prominent American companies appear among the lists of malefactors. Too many of them obviously toy with the truth to an extent that they must know will lose public confidence in their products. They lose confidence in many products of excellent quality which really need no deceptive advertising to sell them.

We have said it before and we say it again,—the Madison Avenue boys have the bit in their teeth and most manufacturers don't seem to know when or where to call a halt to the wild stampede of advertising slush. But that dark cloud hanging over Washington is a fellow named Dixon. That in itself should constitute a warning. If manufacturers don't put a halter on their Madison Avenue dreamers soon, that cloud could become a real storm.

For the finest Shampoos Formulate with...

KRYSTALLEX

LAURYI SULFATES

Constant uniform quality, unmatched color and performance, complete confidential technical service, custom made to your own specifications.

Write today for samples and brochure



"Specialty Organic Chemicals"

as the reader sees it...

Wrong Number

Editor:

Our address mentioned on page 198, of the April, 1961, issue of *Soap and Chemical Specialties*, reads 79 Ninth Avenue. Could you please correct the error?

Gloria Pages Advertising Manager Dodge & Olcott, Inc. 75 Ninth Avenue New York

Done, with apologies. Ed.

Hospital Detergent List

Editor:

It would be most helpful to us in attempting to select a name for a new hospital detergent if we could obtain a reasonably comprehensive listing of names now in use or registered for soaps and similar products in this trademark category.

Do you publish such a directory or can you refer us to someone who might be able to supply a list of this type?

R. W. Bostrom, Manager, New Products Div. Minnesota Pharmaceutical Laboratories, Inc.

St. Paul, Minnesota

Although we publish the new trade marks as they are issued each month in Soap & Chemical Specialties, we have never compiled such a list. "Beauty Fashion" magazine, 101 W. 31st St., New York 1, N. Y., does publish the "Trade Mark Record" with periodical supplements. This covers soaps, perfumes and cosmetics. The "Red Book," (Topics Publishing Co., 155 E. 41th St., New York), or the "Blue Book" of the "American Druggist," 250 W. 55th St., New York, might be helpful. Ed.

The "No Jump" Case

Editor:

In the November 1960 issue of *Soap and Chemical Specialties*, page 99, there appears an article entitled "Novel Bacteriostats Previewed," by A. F. McKay. This article is supposed to end on page 109, but I cannot find any reference to the original pagination on

this page. Please advise me where I might find the conclusion of this article.

Virginia White, Librarian National Academy of Sciences National Research Council 2101 Constitution Avenue Washington 25, D. C.

Through an oversight, the references to Dr. McKay's article were omitted from the November issue. They were published on page 99 of the January, 1961, issue of Soap & Chemical. Specialties, Ed.

Seeks Export Equipment

General American Trading Co., Miami, Fla., exporters to Latin America for the past eight years, are interested in securing additional lines of machinery and raw material used in the soap and chemical specialty industry. Aerosol supplies are said to be of special interest, with General handling credits and guaranteeing payments. Most of the firm's principals are medium sized manufacturers who

do not operate their own export departments.

DuBois '61 Sales Increase

Sales of DuBois Chemicals, Inc., Cincinnati, rose to \$26,976,750 for the 1961 fiscal year which ended February 28, up from \$25,303,747 in 1960. Earnings per share also rose to \$1.06, as compared with 95 cents in 1960. Net income was \$2,580,259, up from \$2,344,674, the previous year.

The company earned \$2, 344,674, equal to 95 cents a share, on sales of \$25,303,000 in fiscal 1960. New products, to be introduced in the next few months, will help boost sales, Louis Lerner, president of the firm stated. DuBois is ready to market a liquid dishwashing machine cleaning compound, a new pots and pan cleaner, a polymer-based floor wax and a heavy-duty floor cleaner for composition floors, it was reported.

Dr. Wallace H. Wulfeck, second from left, vice-chairman of William Esty Co., New York advertising agency, guest speaker at the April 13 luncheon meeting of the Cosmetic Industry Buyers & Suppliers Association, held in New York. Shown with Dr. Wulfeck are, left to right: Walter Morton, Hazel Atlas Glass Co., division of Continental Can Co., New York, CIBS luncheon chairman; Robert C. Ring, Duveen Soap Corp., Long Island City, N. Y., CIBS president; and Dallas D. Rush, Owens-Illinois Glass Co., Toledo, O., CIBS general program chairman.



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 Use Procter & Gamble formulation assistance

KYRO EO. A neutral nonionic synthetic detergent of the 100% alkylphenol ethylene oxide condensate type. A clear light-colored liquid with a clean, pleasant odor. Its superior detergent, wetting and emulsifying properties offer excellent performance in liquid detergents, sanitizer-detergents, self-emulsifying solvents, laundry detergents, glass, textile, and dairy cleaners, insecticides, and bottle washing compounds.

AB GRANULES. A neutral synthetic detergent, wetting and emulsifying agent of the 40% active sodium alkylaryl sulfonate type. A white spraydried product that can be used effectively in the blending of bubble baths, car body shampoo, dishwashing compounds, dairy cleaners, insecticides, laundry detergents, rug and upholstery

was Paste. A neutral synthetic detergent and wetting agent whose active ingredient is mainly sodium lauryl sulfate. Excellent sudsing, wetting, dispersing and penetrating properties. Ideal for paste cream and liquid cream shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, glass cleaners, and especially effective for rug and upholstery cleaners.

AMBER GRANULES.
A neutral 88%, 42°C.
titer type soap of outstanding purity and uniformity. Well
suited for the preparation of paste or
gelled products because of its high
titer. Its granular form makes it ideal
for blending powdered products. Excellent for the compounding of hand
cleaners, paste cleaners, polishes, and
lubricants.

ES PASTE. A specially developed synthetic detergent whose active ingredient is mainly modified sodium lauryl sulfate. Offers exceptional efficiency and stability over a wide range of operating conditions. Its excellent wetting, penetrating, sudsing, dispersing and emulsifying properties make it well suited for the preparation of liquid shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, car washes, emulsion cleaners.

Procter & Gamble products offer you a proven way to simplify your formulation problems and be confident of successful results. We invite your inquiry for further information and the opportunity to forward an Industrial Catalogue. Write to:



Manager, Bulk Soap Sales Department P.O. Box 599, Cincinnati 1, Ohio IVORY BEADS. A medium titer, neutral spraydried white soap of exceptional purity and quality. Well suited for compounding products where a mild but effective soap is required—hand soaps, polishes, protective creams, and dishwashing compounds.

K LIQUID. A highly concentrated modified ammonium lauryl sulfate —formulated for increased sudsing and mildness. Exceptionally low cloud and pour points—highly fluid and easy to handle. Ideal for clear liquid shampoos, liquid bubble bath preparations, and liquid detergents when high foaming is required.

Detergents. Cleansers... Soaps

ere surfactant research is carried on by the L. Government: Main building of the Eastern ization Research and Development Division.

Aerosols

Detergents

Dishwashing compounds

Floor scrubs

Glycerine

Hand cleaners

Laundry soaps

sapes biupil

Medicinal soaps

Metal cleaners

Potash soaps

Scouring cleansers

Shampoos

Shave products

Soap powders

Starch

Steam cleaners

Textile detergents

Toiletries

Toilet soaps and other detergent and soap products





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The right fragrance, whether nature's or in consumer products always endears itself to the recipient. You too can create appeal in your preparation through the introduction of a pleasing fragrance.

Let a trained, experienced Perry perfume chemist select a winning combination for your product. We welcome the opportunity to submit appropriate samples.



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Pilot-plant wing of main building of Eastern Utilization Research and Development Division, Agricultural Research Ser-

vice, U.S. Dept. of Agriculture, Wyndmoor, Pa. Here products and processes developed in lab are tried out on larger scale.

The U.S. Surfactant Industry

By Jackson J. Ayo, Jr., Johannes H. Bruun, and John R. Matchett,

Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C.

NY and all surface active chemicals which involve chemical reactions in their manufacture are called "surfactants" in contradistinction to soap which is considered by many as a naturally occurring product merely neutralized with alkali. Actually, this is not fair usage since in many cases the surfactants are simply sulfonated hydrocarbons or the product of the combination of two easily reactable chemicals, whereas soap requires a skillful hydrolytic process for the conversion of fats into fatty acids before neutralization with alkali. Since soap is a very good surface active product, and is by far the greatest single item of sale, it will be treated as a surfactant in this article.

An important activity of sur-

factants is the lowering of the surface tension of aqueous solutions. Surfactants may, in some instances, be used in the absence of water, such as in motor lubricating oils. However, they are most widely applied in an aqueous medium for household use and throughout the chemical industry for the processing of textiles, leather, rubber, paper, in ore flotation and in oildrilling operations, metal cleaning, wool degreasing, in the formulation of paints, cosmetics, and in agricultural sprays.

The power of certain chemicals to lower the surface tension of water is commonly called "wetting," and products capable of doing this are called wetting agents. All such products are now generally called surface active agents or surfactants (a contracted name) to designate in varying degrees the other associated physical properties of detergency, foam, emulsification, and dispersion. The power to "wet" bears no direct relationship to detergency, though both frequently go hand-in-hand. Some surfactants

Soap products formulated to combine the advantages of soap and syndets may not only stop inroads by detergents bars but may retrieve somelosses in powder sales

Table 1 .-- Multipurpose Surfactants

Surfactant	Chemical Structure	Use
Oleoylmethyltaurine	CH3 C17H33CONCH2CH2SO3Na	Wetting, detergency, foam, emulsification, and lime soap disper- sion.
Nonylphenoxy polyethoxyethanol	С9H19 (ОСН2СН2)9ОН	Wetting, detergency, foam, emulsification
Lauryl sodium sulfate	C12H250S03Na	wetting, detergency, foam, emulsification
Dodecylbenzene sodium sulfonate	C ₁₂ H ₂₅ OSO ₃ Na	Wetting, detergency, foam, emulsification
Soap	RCOO Na RaFatty acid radical	Wetting, detergency, foam, emulsification

have good wetting ability with very little detergency, others exhibit good detergency with very little wetting power.

Foam, which is another important characteristic property of surfactants, is variable and unpredictable for each type of chemical structure. There are surfactants which foam, but have little or no detergency value. Wetting, detergency, and foam, frequently associated, are, nevertheless, independent of each other.

Emulsification is again another characteristic shared in varying degrees by certain surfactants which possess little else than strong emulsifying powers. Thus, surfactants may possess the power to wet, to clean, to foam, and to emulsify, in varying degrees. There are only a few structures which will exhibit all four properties sim-

Table 2

foam, and emulsification. Examples of multipurpose surfactant structures are shown in Table 1. We come now to the fifth and last of the well defined physical properties of surfactants, namely, dispersion, which is the power to break up agglomerations of substances. There is no known sur-

ultaneously to a fairly strong de-

gree. They exhibit the multiple function of wetting, detergency,

factant which has all five properties to a high degree. Yet, there are surfactants which possess excellent dispersion powers with little or none of the other properties. Table 2 gives a partial list of what we have called unipurpose surfactants, because of the strong predominance of one characteristic. Nevertheless, it must be borne in mind that these compounds also possess some of the other characteristics of surfactants, if only to a minor degree.

Effect of Structural Change

Surfactant properties vary widely within similar types of structures. Wetting properties of dibutylnaphthalene sulfonate (Table 2) shows considerable variations depending on whether the sulfonic group is in the alpha or beta position, or whether the alkyl group is propyl, isopropyl, or butyl.

Replacement of the oleic acid radical of the oleoylmethyljaurine surfactant (Table 1) with other fatty acids, or replacement of the methyl group with other alkyl groups, results in a very marked change in surfactant properties. The nonylphenoxy polyethoxyethanol surfactant exhibits pronounced changes in characteristics due to a variation in length of the polyethylene oxide chain which may vary from about 4 to 80 polyethylene oxide moles. At 4 moles or less, the product is soluble in oil only. Higher ratios impart more water solubility and greater wetting power; still higher ratios raise the emulsifying power, but reduce wetting and detergency. Since physical properties may be slightly or even radically altered by varying

Table 2 .-- Unipercose Surfactante

Surfactant	Structure	Unlournose
Utbutylnaphthalene sodium sulfonate	(C4H9)2-053Na	wetning without determency
Tauroylmethyltaurine	CH ₃ C ₁₁ H ₂₃ CONCH ₂ CH ₂ SO ₃ Na	Determency moderate wetting
Oleyltaurine 1/	C18 ^H 35 HncH ₂ cH ₂ so ₃ Na	Foat
Polyethoxyethyl monotallate	RCOO(CF CH_O) H ? 2 x R = Tall oil radical	Determency with little foam
Polyethoxyethyl mono-oleate	C ₁₇ H ₃₃ COO(CH ₂ CH ₂ O) _x H	Emulsification.
Nethylene bis (nanhthalene sodium sulfonate)	CH ₂	Disnersion

1/ This surfactant is of interest but is not manufactured.

the number of ethylene oxide groups, this surfactant structure is widely applicable to numerous industrial processes.

Substitution of the fatty alcohol part of the molecule of lauryl sodium sulfate with other fatty alcohols will result in changes of surfactant quality, lauryl alcohol being excellent for foam, hexadecyl and octadecyl alcohols imparting better detergency. The detergency value of alkyl benzene sulfonate drops if there is a deviation from the dodecyl radical, although the tridecyl radical is known to enhance the stability of the foam.

Soap, of course, is susceptible to a change of surfactant characteristics by merely changing the fatty acid. Tallow fatty acids are considered best for detergency; palm kernel or coconut oil fatty acids are best for foam.

Classification

Obviously, surfactants cannot be classified on the joint basis of structure and physical properties, but they can, as well be classified on a cyclic-acylic structural basis. However, the broad classification of all surfactants based on their ionic properties is preferred, because this system has more bearing on applications.

In the synthesis of a surface active agent, two chemical substances are brought together, one of which is water-soluble (hydrophilic) and the other is water-insoluble and usually oil-soluble (hydrophobic). The combination forms a large molecule which may be insoluble in water; hence, solubilization must be provided by introducing a solubilizing sulfate, sulfonic, carboxylic, or polyethylene oxide group. This is not necessary, however, if the hydrophilic portion of the hydrophile-hydrophobe molecule is itself sufficiently soluble in water to impart solubility to the whole molecule. When such provision for solubilization is made, the solubilizing group itself may be considered to be the hydrophilic portion of the molecule.

If the portion of the mol-

Table 3, -- Selected List of Surfactants Based on Ionic Classification

Surfactant	Formula	Hy rophobe portion	Hydrophile Portion	Class
Oleoylmethyl- taurine	[17H33CO.CH2CH2S03] Na	CH33CCC-CH2CH2CH2CH2CH2CH2CH2CH2CH2CH2CH2CH2CH2C	so ₃ Na	Anionie (Negative)
Nenylphenoxy rolyethoxyethanol	сэн, э (осн 2сн 2) он	C9H10€	(OCH ₂ CH ₂) ₉ OH	Nomionic (Neutral)
Lauryl sodium sulfate	[c ₁₂ H ₂₅ 080 ₃]Na	C ₁₂ H ₂₅	DSO ₃ Na	Anionic (Negative)
Lodecylbenzene rodium rulfonate	[012H2500] Fa	C12H25	SD ₃ Na	Anionic (negative)
Cetyldimethyl- benzylammonium chloride	CH3 c1-	C16H33	CH3 c1	Catlenic (positive)

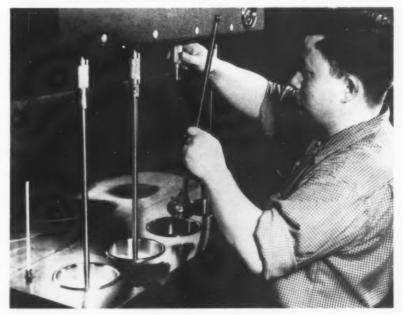
ecule containing the hydrophobic group becomes negatively charged in water, the surfactant belongs to the class of anionics; if the charge is positive, then the surfactant is cationic. If there is no charge at all, and, therefore, no ionization, the surfactant is nonionic. There is a fourth type, relatively unimportant, which is classified as amphotevic because the surfactant molecule exhibits both positive and negative charges.

Cationics are a small volume

sales group compared with the anionic and nonionic surfactants, and more expensive than either of these. They exhibit limited soil emulsifying and removing power besides their main role as germicides. Cationics are not compatible with anionic surfactants because the large portion of the molecule, being positively charged, will combine with the large negatively charged portion of the anionic material and form an insoluble pre-

(Turn to Page 252)

Miniature washer gives accurate information on the value of synthetic detergents from animal fats. "Terg-O-Tometer" shown is in operation at U.S.D.A.'s A.R.S. Eastern Utilization Research and Development Division laboratory in Wyndmoor, Pa.



HE art of making soap is to take a yard of water and make it stand up on end." This remark has been attributed to Lord Leverhulme. In actual fact however, at one stage in the history of the soap making industry, where soap was sold in bars under no brand name as such, the 'pirate' and 'backyard' soap manufacturers vied with each other in producing soaps with more and more water. This was in no way the fault of the soap maker as he was spurred on by his management in every case with the idea of increasing profits.

In most countries of the

dates back to the time when caustic soda was not of the high grade that is obtainable today. Invariably there were some dark colored impurities present. If there was not a surplus of water present in the finished soap, the sodium stearate or sodium palmitate present crystallized out before the sodium oleate. As a result, the dark colored impurities were thrown out of the crystal matrix and were absorbed in the oleic acid soap to give the mottled appearance of a white bar with colored blotches. The color varied, depending on the impurities present in the original caustic soda used, and quite often the

BLUE MOTTLED SOAP By B. M. Milwidsky, Haife, Israel

world legislation has now stepped in to control the quality of soap. Here, in Israel, soap in bar form is controlled to 62% fatty acid. In the Union of South Africa, and most of the southern portion of Africa, household laundry soap is classified into two categories. Where the words 'pure', 'prime' or 'best quality' etc. are used the soap must have a minimum fatty acid content of 63%; all other soaps, described legislatively as "filled soap", must contain a minimum of 45% fatty acid.

In South Africa, which is basically a soft water country, the largest proportion of consumers of laundry soap are the non-European population, who use it for their own purposes — for the washing they take in and also very often for toilet purposes. Approximately 60% of all soap made in South Africa is of the filled variety and of this variety about 80% 'blue mottled'; the other 20% consisting of yellow bar soap.

The origin of mottled soaps

color changed on storage due to oxidization of the iron salts present. The mottled appearance was taken to be the criterion of a good soap. In fact, a certain amount of genuine mottled soap is still made, but by far the largest proportion of mottled soaps on the world market these days is of the filled variety.

Raw Materials

Contrary to generally held opinions, filled blue mottled soaps do not need first class raw materials. Due to the fact that there are fillers present, the solubility of the finished soap in an electrolyte solution must be increased or else the soap will be thrown out of solution. When this happens, a layer of neat soap with hardly any coloring matter will be found at the top of the frame and all the fillers, water, coloring matter and a little of the soap will sink to the bottom of the frame. This is overcome by the use of nut oils, primarily coconut or palm kernel, usually a minimum of 20% of the fat charge. There are also other ways of achieving this increased solubility, which will be discussed below.

The tallow of the fat charge, which can be as much as 80%, need not be high grade, an average titre of 38° C being quite sufficient. American No. 1 or Australian Medium Gut is quite satisfactory for this purpose. In recent years economics played quite an important part in the fat charge. When coconut oil rose in value to more than 50% that of tallow, means had to be found to bring down the average cost per pound of the fat charge. Rosin is quite a useful additive, but in South Africa it is limited by law to 15% of the fat charge. However, rosin tends to darken the soap and also, due to oxidization, darkens during storage. W. G. rosin is the grade that can be used and its price is comparable with tallow. However, as rosin soap is an inferior detergent and no glycerine is recovered from the rosin there is no advantage in using it.

Crude tall oil has in recent years been playing quite an important part in filled soap manufacture. The price of tall oil is about half that of tallow. The crude product is quite dark and has a characteristic, rather objectionable smell. In practice it is found that up to 7% of the fat charge will leave no smell in the soap. It will not impair the detergent properties and when treated by the method outlined below will not darken the soap.

Crude soap stock fatty acids if available to the soap maker also play a very important part in bringing the average fat cost down. It must be borne in mind that rosin, tall oil and soap stock fatty acids do not yield glycerine, but what must be remembered is the primary purpose of the operation. If you are running a soap factory with glycerine as an incidental (although valuable) by-product, consider the realization value of glycerine per pound of neutral fat purchased. Consider then the cost

of the non-glycerine bearing materials, and if this cost, plus your average glycerine recovery per pound of fat, is appreciably lower than your gross fat cost, then it is definitely a saving to use these materials. If, however, your terms of reference are such that glycerine is playing an overpowering part in your economic structure, or if it is necessary to supply a definite amount of glycerine on a contractual basis, then it might be necessary to review closely the ideas on buying fatty acids.

Of the commonly available soap stock fatty acids, peanut, sunflower, soya bean and maize germ can be used quite freely. Cotton seed soap stock fatty acid, however, is usually too dark to incorporate in a soap of this kind and cannot too easily be bleached to the whiteness required for a blue mottled soap. However, if transportation costs do not become prohibitive the unsplit cotton seed soap stock can be added to the kettle provided satisfactory arrange ments can be made between the oil mill and the soap factory regarding unifomity of product. Or it can be purchased on the basis of saponifiable matter present in soap stock.

All the above additives are only worthwhile as replacements for tallow and the cost must be weighed against the cost of tallow less the recovery of glycerine. If their cost is still cheaper it is worthwhile. As a rough guide, a reduction of one cent per pound on the average cost of the fat charge will give a saving of cost of \$.45 per 100 pounds soap produced. These fatty acids can be used to replace a certain amount of tallow, but the soap must still contain at least 50% tallow in the fat charge. A suggested formula for the fat charge could then be written:

Tallow (No. 1)	50
Crude coconut oil	20
Crude tall oil	7
Peanut fatty acids	13
Sunflower fatty acids	10
	100

In actual practice these figures are not adhered to exactly but are rounded off to drum quantities, it being both time consuming and virtually impossible to withdraw portions from drums. This formula might then become in drums:

Tallow (No. 1)	15
Crude coconut oil	5
Crude tall oil	2
Peanut fatty acids	3
Sunflower fatty acids	2
	-
	27

The slight variation due to difference in weights of the various materials in the drum is ignored. The 7% tall oil present is purely a diluent of the fat as it gives a product of slightly inferior detergent properties. In actual practice at this figure the drop in detergency is not noticeable. The soap stock fatty acids give added lathering properties to the soap as the sodium salts of their individual component fatty acids are slightly more soluble in cold water than tallow soaps. Coconut oil, of course, besides supporting fillers, gives enhanced lathering properties in cold water. However, when the price of coconut oil soars to make its use in soap uneconomical, means must be found to replace or partially replace it with a material having similar properties. Although it cannot be explained on theoretical grounds, a further property of soaps containing an appreciable amount of coconut oil is that they do not tend to dry out and shrink as much as soaps of a different formulation.

Useful and complete replacements for coconut oil are palm kernel and Babassu kernel oils. Since the prices of these two oils usually follow the price of coconut oil their use offers no economic advantage. A material little known on world markets but which appears from time to time on the South African market is Mafurra oil, which appears with a variety of characteristics on the order of: Free fatty acid 6%
Titre 45-48° C
Saponification value 210-235
M.LU. 3%

From the above characteristics it is obvious that Mafurra oil is a very hard fat. The individual fatty acid constituents are not well known but one can assume that there is a fair proportion of lauric and myristic acids present.

Tallow is basically stearic, palmitic and oleic acids, whereas coconut is mainly lauric, with some myristic and palmitic acids. Mafurra therefore, appears to have approximately the same characteristics as coconut and tallow. From this it may be assumed that a filled soap could be made mainly from Mafurra alone. In actual fact, this is the case. However, there is one big drawback. Mafurra is usually very dark in color and although it can be bleached fairly well, soap made from Mafurra tends to darken on storage. However, a mixture of tallow and Mafurra will prove quite successful. Mafurra could, therefore, be blend ed into a filled soap in this manner:

Mafurra oil	30
Tallow (No. 1)	30
Peanut fatty acid	15
Sunflower fatty acids	1.5

Note that in this case it is not advisable to incorporate with Mafurra either tall oil nor cotton seed fatty acids as these are dark materials. Mafurra is a seasonal crop and the supply cannot cope with the demand, so production cannot depend on year 'round supply. A product which has appeared on the market in recent years and is showing a lot of promise is distilled homogenized tall oil. This has the appearance and consistency of butter. Using distilled homogenized tall oil it is possible to bring the coconut oil content down to 7% in the following formulation:

ation.	
Tallow	50
Coconut oil	7
Homogenized tall oil	12
Cotton seed fatty acid	10
Sunflower fatty acid	6
Peanut fatty acid	15

This formulation was found to be quite satisfactory and the supply of raw materials was able to be maintained throughout the year.

Certain other materials can be used if and when available as a direct replacement of the above. Palm kernel oil and Babassu kernel oil, as mentioned above, can be used as a direct replacement for coconut oil. Palm oil, if economically available, can be used as a direct replacement for tallow. Using palm oil, the coconut oil content can be lowered to 12% due to the fact that palm oil contains a large proportion of palmitic acid.

Fleshing grease, (the fat obtained as a tannery by-product and also in the manufacture of skin glue from tannery fleshings), which usually has a minimum titre of 36° C. is a very useful and a complete tallow replacement, but with the lower titre the total amount of tall oil and soap stock fatty acids should not exceed 15° c.

Hydrogenated oils, especially fish and whale, are available at a price comparable with tallow, and can also be used as a tallow replacement. However, a maximum titre of 44° C. should be specified. On one occasion blue mottled soap was made with a hydrogenated fish oil of 51° C. titre and was found to give a double mottle. The very high melting constituents (probably saturated acids of chain lengths of C and higher) give a very nice white, almost crystalline base. In addition, there was an intermediate pale blue mottle and finally a dark blue mottle consisting of the soft constituents of the soap. Due to the presence of the high proportion of saturated extra long chain acids, the lathering power of the soap decreased. However, with a maximum of 44° C, titre and careful blending of the other constituents this material can be used.

Finally, an empirical guide to blending can be used. The average titre of the fat charge should be of the order of 30.5-33% to give a satisfactory soap. To obtain this figure, multiply the titre by the percentage of the constituent, add

up the various products so obtained and divide the sum by 100. For this purpose tall oil can be allocated with an empirical figure of 15 and refined homogenized tall oil as 30.

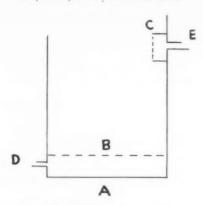
Manufacturing Process

The fats are saponified in the usual way, but as will be seen below, it might be necessary to keep back a small portion of one of the fatty acids. Prior to saponification it is advisable, if palm oil or Mafurra oil are being used, to air bleach the fat. This can best be achieved by placing the fat in an open kettle equipped with a steam coil (to keep the fat molten) out in the open. Air is then blown through the charge for a minimum of 12 hours. The air can best be supplied by a steam ejector sucking air from the side and passing it through a perforated coil at the bottom of the tank. The advantage of this process is that it is not necessary to keep the steam coils going during the process as the air enters mixed with steam and this tends to keep the fat in a molten state. The steam/air mixture also tends to volatilize off any volatile odorous constituents.

Nigre from a higher grade soap can be incorporated into the kettle provided that it is not too dark and that the soap from which the nigre was drawn off had a fair proportion of coconut oil. If not, this deficiency must be made up.

Blue mottled soap, as the name implies, is a white based soap with a mottle of blue. The base must be white to give the proper appearance and if the soap is vellowish, the mottled portion will have a yellow tinge. A small amount of yellowish color can be tolerated in the soap as during the mottling process an infinitesimal amount of the blue pigment becomes incorporated in the base and this gives a very white color. After saponification the soap is grained either with salt or brine. The use of brine through a brine percolator allows of the use of low grade salt. A brine percolator can

very easily be constructed thus:



A is a 45 gallon drum (or any container of a convenient size)

B & C are perforated plates with holes of 1/8"

D is the water inlet connected directly to the mains.

E is the brine outlet.

In operation A is kept full of salt and water is allowed to percolate in at D and out at E, straight into the kettle. The rate of flow of the water must be adjusted so that the brine flowing out at E is of the required strength, usually 20-23° Be. The dirt settles to the bottom of the drum and can be cleaned out periodically. After graining the soap is allowed to remain overnight. The following morning the lye and nigre are drawn off and the soap boiled on strength with small amounts of caustic soda until no further caustic soda is absorbed. If the soap at this stage is of a good color. (this depends on the original fats and oils), the process can be continued from here. If not it will be necessary to bleach. An efficient method of bleaching is to use sodium hypochlorite with the soap not too alkaline. To achieve this condition, after no more caustic is absorbed in the boiling on strength process, add small portions of fatty acid (from the portion that was originally kept back prior to saponification), until the soap is just not alkaline, i.e. until the alkaline taste disappears or when the pink color no longer appears with phenolphthalein. 10% sodium hypochlorite solution is now added to the pan in the proportion of 2 gallons for every ton

of fats originally tharged into the kettle. This figure is not absolute and can be varied depending on the color of the fat charge. The kettle is now beined with live steam for 15 minutes to mix in the hypochlorite and then immediately grained with salt or preferably brine. After the soap is grained it is allowed to stand overnight.

The following morning the lye and nigre are run off, and the kettle measured. At this point, the soap will be 60-63% fatty acid. The amount of water required to bring the soap down to 45% fatty acid is now calculated. From this figure is subtracted an allowance for the steam condensed and absorbed by the soap during the finishing process, which usually takes up to four hours. The steam coils, both live and dry, are now partially opened, a 'ew gallons of caustic lye run in, and the boiling started. At this stage all scraps from previous boils can be adde 1. If cutting operations are efficient and each batch of scrap is disposed of as it is made, the scrap should not amount to more than 10-120% of the kettle, although considerably more can be absorbed.

Once all the scrap has been added, the fillings can now be incorporated. Alkaline sodium silicate 140° TW, at the rate of 30% of the curd soap (2% of the final soap) is now run in slowly without dilution and small portions of the requisite amount of water is added, with the steam coils fully opened. The steam coils remain opened until the soap reaches the top of the kettle. The soap is kept at this level until the finish of the operation. After the silicate has been added, soda ash, at the rate of 11/4° of the curd soap, is poured in dry, with boiling and small amounts of water. The boiling operation should be so arranged that the soda ash is added before the soap has risen considerably in the kettle. Otherwise, if the soap is already puffed up, the soda ash will lie on the surface and will take a considerable time to be incorporated. Some soap makers prefer to use in the place of 1¼% soda ash, 18 pounds of soda ash and seven pounds of Glaubers' salts per ton of curd soap. This has no apparent advantage, in fact, more often than not the addition of Glaubers' salts has certain disadvantages. Glaubers' salts plays no part at all in the detergent properties of the soap, whereas soda ash does. Besides, Glaubers' salts will tend to effervesce to give off a white 'frost' on the soap after storage.

When the soda ash has been well incorporated, the blue pigment, usually ultramarine blue, is added at the rate of seven to 10 pounds per ton of curd soap. It is preferable to place the blue pigment in a drum and mix it with about 10 times its weight of water. This dispersion of pigment is then poured into the kettle. At this point about half the total amount of water should have been incorporated, as a now the soap is boiled to reach the top of the kettle, with the dry coil shut off, with additions of water. When nearly all the water has been added, po.tions are withdrawn in a bucket and a small amount of water added and the effect noted. If the soap thickens with the addition of water it can take more; if it becomes thin or forms froth, too much water has been added. At this stage it is advisable to check the fatty acid of the soap. The classical methods take too long as an interim check of the boiling operation, so a routine rough method can be used. The apparatus required is a Babcock bottle used for determining fat content of cream. The bottle should be of 100 c.c. capacity with a stem to read 10 ml, subdivided into 0.1 ml graduations. 10 gms of the boiling soap are weighted into the bottle, 50 c.c. of boiling water added and the bottle gently shaken until all the soap is dissolved; then 20 c.c. of hot 20% sulfuric acid solution is slowly run in and the volume made up to the mark with hot water. The bottle is now placed in the hand centrifuge and centri-

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New Management

Accent on

HE accent is on youth at 95-year-old Fels & Co., Philadelphia manufacturer of soaps and detergents. Not only did this old line firm elect a new president—41-year old David Melnicoff — at its annual meeting, March 28, but Fels & Co. took occasion to dedicate its new and greatly enlarged research and development laboratories.

The new "Cyril G. Fox Laboratories," under the direction of Dr. Joseph A. V. Turck, are separate from long-established analytical and quality control facilities.

Top, left, Robert F. X. McRae (right) secretary and purchasing agent, of Fels, explains advantages of new, stronger, lighter separator for "Gentle Fels" shipping carton to Harry R. Boone (left) director of quality control and enalytical section of quality control lab, and David C. Melnicoff, president.

Sales statistics coming off IBM tabulating machine (top, right) are examined by Joseph J. Greipp (left). Fels treasurer, and Peter Bradley, IBM supervisor. Machine is part of Fels' modern accounting and records control system.

Mr. McRae, left, Dr. Joseph A. V. Turck, director of research and development, and Cyril G. Fox, chairman, examine one of more than 1200 raw materials in stockroom of new Fels research and development labs.

Max Brown, center, executive vice-president, and Harry Hugues, vice-president and general manager, second photo from top, right, examine batch of clothes in product testing section of lab. Both standard and laboratory size washing and drying equipment is used.

In third photo from top, left, Dr. Turck, right, explains to Cyril G. Fox, chairman, seated, and Harry J. Hugues, how new research and development lab's automatic visible-ultraviolet recording spectrophotometer works.

Analytical section of Fels' new research and development lab, third from top, right, is equipped with modern apparatus to handle many types of analytical or physical measurement in soap and detergent field.

Bottom left: Multi-purpose reflectometer is one of many devices used in new Fels quality control lab to measure quantity of color of opaque materials and also whiteness to determine laundering efficiency and to check effects of detergents on hard surfaces.

All finished products in quality control lab are subjected to practical use tests including those in battery of washing machines and dryers (bottom right).

Team, New Laboratories, New Ideas ...

Youth at 95-Year-OldFels & Co.

They are named for the present chairman of Fels, a 40-year veteran of the organization, who served as president from 1950 until his elevation to the post of chairman on March 28.

The new laboratories have been provided with sufficient area to allow expansion to double their initial size. Equipped with the most modern analytical and testing devices, plus a wealth of reference material, the laboratories will concentrate on enlarging the growing family of Fels household cleaning products. They will also be able to support new work in the chemical specialties field and will contribute to the development of additional custom manufacture for other distributors. The firm's separately housed quality control and analytical laboratories have also been enlarged.

Fels, under the energetic sales leadership of Max Brown, has been moving ahead quietly and effectively in the marketing end of the business. Mr. Brown, just upped from vice-president in charge of sales to executive vice-president, while still only 54 years old, has been with the firm since 1927.

Another member of the "management team" at Fels is Harry Hugues, who began with Fels 31 years ago as a clerk fresh out of high school. While working for Fels, he studied chemical engineering at the Drexel Institute of Technology Evening School, and was graduated in 1937. He also took postgraduate evening courses in business administration. As vicepresident and general manager, he has come a long way since the five years (1934-39) he spent as a technician and chemist in the quality control and development laboratory. In 1940 he became supervisor of several plant production departments, and in 1945 was named assistant plant superintendent, advancing to plant superintendent five years later. Mr. Hugues, who has long since stopped trying to convince people that his name is not "Hughes," was elected a director of Fels and vice-president in charge of production in 1959.

The new Fels president,

David C. Melnicoff, formerly served as vice-president – administration. Basically a business economist and marketing analyst, he is the third president of Fels & Co., a company he joined in 1956. At that time he was elected a director, having previously held administrative posts in banking and grocery retailing. Mr. Melnicoff is a native of Philadelphia, and holds

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Fels' quality control lab in building in upper photo provides more space for packaging laboratory and analytical section of quality control to police raw materials and finished products and do exhaustive evaluation of packaging.

A portion of product evaluation section of Fels new research and development laboratory is shown in bottom photo. Adjacent to storercom of hundreds of raw materials and product samples, and special water preparation area, this part of lab uses full range of standard washing, drying and ironing equipment, as well as small scale laboratory apparatus for close control of temperature, time and agitation.



Forces in Detergency

By Jay C. Harris, Monsanto Chemical Co. Dayton, O.

URFACE active agents are, essentially, by definition, active at interfaces or, more specifically, energy is exerted or expended in aligning surfactant molecules at these interfaces. A detergent system is comparatively complicated, as it involves a substrate (frequently of complicated physical structure) upon or to which, adhere films or particles of soil, most frequently as multicomponent mixtures. Forces (or energy) involved in the adherence of the oil film or particulate soil to the substrate are several, and vary considerably in their magnitude. The detergent system consists of the soiled substrate and the surfactant (or detergent) solution. A number of changes in the surfactant solution occur as a result of concentration and/or temperature effect, adsorption and solubilization, and these imply a greater or lesser energy change.

McBain (66) wrote a typical equation for detergency as

fabric · dirt + soap →

fabric soap + dirt soap (1) This simple equation suggests one desorption and two further adsorptions. Schwartz and his coworkers (83) have used models of both solid and liquid soils on substrates to demonstrate detergency.

In Figure 1A an adhesive bonding force of solid soil S_a for substrate A is indicated as being reduced so that weak mechanical force permits breaking the bond. In Figure 1B-1 a layer or droplet of oil is shown adhering to the substrate or finally removed. However, in the rolling up of the oily soil, droplets may be found, but frequently the bulk of oily soil is

removed, leaving a rather tightly adherent possibly monomolecular layer of oil still retained. These models suggest that work or energy must be expended, first in surfactant adsorption on both substrate and soil, and with liquid soil an additional relaxation or release of oil droplets, or, if a monomolecular layer of oil is retained, in release of adhesively bonded oil. It was further suggested but not illustrated here, that the mixture of oil/solid soil upon further agitation leaves an emulsion of oil from which the solid separates and this may still later redeposit on the substrate.

Adsorption of surfactant on both soil and substrate can occur at very low solution concentration, but Preston (77) showed that optimum detergency (and other physico-chemical functions) occurred in the region of critical micelle concentration (cmc). Adsorption is also at a near maximum at cmc (45). However, in the region of cmc, other energy changes occur with aggregation of the molecules, and these may have further effect upon the apparent equilibrium of the detergent system.

Rideal (81) suggested two mechanisms for soil removal, one being dependent upon detachment of a polarly adsorbed substance such as a fatty alcohol or acid, the polar linkage being broken in water, then combining with the polar group of the surfactant. Here, the process is dependent on the nature of the polar linkage, and the temperature dependence would be independent of the nature of the surfactant. The second

mechanism was suggested as operative at patch edges of adsorbed organic matter, and displacement occurring with a strong linkage of the surfactant (RX) with the substrate

Substrate—alcohol + RX·H₂O →
 Substrate - RX + alcohol·water
 This may proceed with a decrease in free energy, or a surfactant-alcohol complex may form

 Substrate - alcohol + RX·H₂O → Substrate·H₂O + RX·alcohol
 or, a third possibility was that

3) Substrate – alcohol + 2 RX·H₂O -Substrate·RX + RX·alcohol

Either 1 or 3 above leave surfactant on the substrate preventing alcohol redeposition, but complete soil removal by emulsification or removal by foam are necessary for complete protection. It was suggested that if adsorbed surfactant phases were mobile, that this might affect ease of removal, but that dipole interacted molecules were probably anchored. However, activated migration was said to be able to take place if the free energy of this reaction did not exceed 7 kT (about 5000 cal/g mole):

substrate·detergent + H₂O \rightarrow substrate·H₂O + detergent (2) Fava and Eyring (27) investigated desorption of sodium dodecylbenzene sulfonate from cotton and found a heat of activation for desorption of 2700 cal. (but the cotton used may have significant effect upon apparent adsorption values).

An early attempt at the evaluation of the effect of mechanical force upon soil removal was that of Osborne and Smith (5). An arbitrary force series was estab-

lished using the Launder-Ometer by varying the weight of steel balls used and the time of operation. A variation of relative force from 1 to 48 was established and several detergents were evaluated using a single soiled fabric. By plotting the data logarithmically, equations for the linear portions of the curves were derived:

d log S (% soil removal)

d log C (% concentration)
log S =
$$n_1$$
 log C + log K_1
S = $K_1C^{n_1}$
and
S = $K_2F^{n_2}$ (F is force)
and
S = $K_3T^{n_3}$ (T is time)

On the portion of the curve where increased detergent concentration was accompanied by increased soil removal, a given degree of soil removal was expressed as

) -

ol · water

2O →

cohol

· H20

ohol

$$S = K (CFT)^n$$
 (7)

The value of n was always positive and less than 1 and the equations represented parabolic formulas. When n was 0.5 the equation represented a horizontal parabola and the formula became

$$Y^2 = (K^2) X \qquad (8)$$

The conclusions from this work were: The detergent concentration required was inversely proportional to mechanical force applied at constant soil removal,

time and temperature. Wash time and detergent concentration were inversely proportional at constant soil removal, force, and temperature. Wash time and force were inversely proportional at constant temperature, concentration, and degree of soil removal.

These illustrations serve as an introduction to a complicated

$$= n_1$$
 (the constant slope) (3)

(4)

subject. A correlation of the energy data applicable to the detergent system will be attempted.

Definitions and Constants

Free Energy

That portion, F, of the total energy which can be utilized for work. F = (H - TS), where H is enthalpy or heat content (the internal energy pressure x volume), T the absolute temperature of the system and S is the entropy.

Entropy (S)

The unavailable energy of a substance which is due to the internal mo-tion of the molecules; it is used internally and cannot be used for mechanical work.

$$S \, = \, - \, \, \frac{d\gamma}{dT} \quad per \ cm^2$$

Klotz (61) defined the entropy of a system in terms of a differential equation for dS, the infinitesimal change in entropy

$$dS = \frac{DQ_{rev}}{T}$$

where DQ is the heat absorbed in the infinitesimal reversible portion at temperature T, dS is an exact differential, and therefore S depends only on the state of the system and is independent of path.

Enthalpy

The heat content, H, per unit mass expressed in BTU/lb.

Miscellaneous

 $1 \text{ dyne/cm} = 1 \text{ erg/cm}^2$ $1 \text{ Cal.} = 4.181 \times 10^7 \text{ ergs } (18^{\circ}\text{C})$

I Cal. = 4.183 joules (18°C) Gas Constant R = 1.986 Cal. (ca. 2 Cal.)/degree/mole $= 8.314 \times 10^7 \text{ ergs/degree/gm mole}$ $N = \text{Avogadro's No.} = 6.02 \times 10^{23}$

k = Boltzmann's constant (gas constant R/molecule)

 $k = \frac{R}{N} = \frac{8.314 \times 10^7}{6.02 \times 10^{23}} = 1.38 \times 10^{-10} \text{ ergs/degree/molecule}$

kT = 1.38 x 10⁻¹⁶ ergs/molecule (at temperature T) = 3.3 x 10⁻²⁴ Cal/molecule = 1.987 Cal./mole

Adsorption Forces

Brunauer (13) summarized the difference between physical adsorption and chemisorption essentially as follows:

> van der Waals Physical Chemisorption

Forces similar to those active in condensation phenomena. Forces similar to chemical reactions.

Heat of adsorption same order magnitude as heats of condensation.

Heats similar to those of chemical reaction.

Nonspecific adsorption.

Specific adsorption by chemical affinity. Rate adsorption rapid,

Energy of activation required before adsorption can form.

Adsorption isotherm either uni- or multi-molecular.

Unimolecular adsorption.

Taylor (91) pointed out that chemisorption generally increased exponentially with temperature.

The treatment by de Boer (21) of atomic forces and adsorption is a detailed topical discussion, and should be studied for the derivation of the short summary which follows. Counter to attraction forces between atoms and molecules are repulsion forces which, when an equilibrium distance is attained, counter-balance one another. The "true" energy of a system may be influenced as much as 50% for van der Waals forces by repulsion, but when the adsorption is all of the van der Waals type the repulsion forces are nearly completely counterbalanced by correction terms applied to the attraction forces.

Coulomb interaction between the surface of an ionic compound and an adsorbed ion, using an ideal crystal lattice as an example, shows varying electrostatic forces depending upon the crystal

corner or face, resulting in extremely active and less active adsorption sites. Active spots for electrostatic adsorption are present in freshly powdered materials in remnants of crystal faces, edges and corners, "end" positions and lattice disturbances at the surface. "Image" forces in a plane metal surface may permit interaction between them and ions and could be of the order of 29.5 kcal/mole. but only 26 kcal/mole if the metal particle were spherical and the distance of the ion to the particle were slightly greater. Shifting of the electrons in a dielectric surface by ion adsorption to induce polarization as with any adsorbent, and energy contributions by a variety of forces, may result for a given distance of ion to surface, and examples of the magnitude of the several forces follow:

	kcal/mole
NaCl, smooth cubic face	
Coulomb force	7.8
Induction of adsorbent	-15
NaCl, cubic face, "end	
position" (Coulomb)	103
Metal surface (induction)	29.5
Dielectric surface (induction)	8.6-28.5

"Free" valency electrons in surfaces may result in covalent links with adsorbed atoms or radicals by chemisorption, exemplified with graphite and metal surfaces. In a clean metal surface at least one "free" valency electron is available per metal atom and can be given off, provided a certain amount of energy is supplied (the work function and electron affinity are numerically equal). These functions for several metals (1) follow:

Metal	Work Function
Magnesium	2.42
Zinc	3.5
Copper	4.3
Silver	4.7
Iron	4.7
Nickel	5.0
Platinum	6.3

(The smaller the number the greater the volume of electrons emitted.)

Physical adsorption (21) is also known as van der Waals adsorption, and the atoms of water, ammonia, and organic molecules

Nonperipheral dipole on ionic surface CO ₂ and KCl system Nonpolar v.d.W. forces Electrostatic polarization Dipole forces		3.30 kcal/mole 1.14 kcal/mole 3.25 kcal/mole
	Total	7.69 kcal/mole
Experimental value — 7.45 kcal/mole Peripheral dipole on ionic surface Phenol and NaCl system Nonpolar v.d.W. forces (CaHa group Dipole forces of OH group Nonpolar v.d.W. of OH group Electrostatic polarization of OH g	oup)	3.4 kcal/mole 5.3 kcal/mole 0.06 ₈ kcal/mol 0.06 ₆ kcal/mol
	Total	9.35 kcal/mole
Dipole on metallic surface NH ₂ on copper Nonpolar v.d.W, Dipole attraction		3.55 kcal/mole 0.45 kcal/mole
	Total	4.0 kcal/mole
lon on ionic surface Cl ion on NaCl (idealized face) Coulomb force Induction of adsorbent Electrostatic polarization of ion Nonpolar v.d.W. forces		7.8 kcal/mole 17.9 kcal/mole 0.7 kcal/mole 2.1 ₅ kcal/mole
	Total (approx.)	28.5s kcal/mole

are held together cohesively by these forces (dipole, induction, dispersion). The larger the molecule the more it benefits from the additive character of these forces. They result from the polarization of each one of the participating molecules of a pair by the continuously changing field caused by the electronic movements in the other partner.

The larger the number of direct contacts between the adsorbate and the adsorbent (and generally the rougher the adsorbent) the greater the adsorption energy. Since this type of adsorption may be multilayer, the initial layer will generally exhibit the greater energy, subsequent layers then being at sites of relatively lower energy, or of adsorbate with already adsorbed material, these outer layers exhibiting further lowered energy.

The van der Waals forces thus far considered have been essentially non polar in character. When a molecule has a permanent dipole, as is the case with water, ammonia, and many organic compounds (and surfactants), attraction by the electrostatic field of the surfaces of ionic dielectrics may also be expected, but for smooth

surfaces these forces are not very strong. The adsorption of water by a variety of surfaces are examples of this type of adsorption: Adsorbents such as glass, cellulose, wool, carbohydrate or protein materials have polar sites such as CO, O, OH or NH groups. This type of adsorption is called hydrogen bonding.

A comparison of dipole with ion adsorption at the same active site indicates the relative magnitudes of these adsorptions. An ion, under certain conditions, at an ideal active site would show an adsorption energy of 118 kcal/ mole as against 7.8 kcal/mole by electrostatic forces (for a smooth surface), or a ratio of 15 to 1. A dipole adsorbed at the same site would be 16.6 kcal/mole as against 5.8 kcal/mole for the smooth surface or a ratio of 3:1, showing the lesser influence of active sites upon polar van der Waals adsorption. The adsorption of a polar molecule on a metal surface is of the image type but at a much lower energy level than for an ion. While an ion is more strongly bound by a metallic surface than by the electrostatic surface of an ionic crystal, polar molecules exhibit exactly the reverse effect.

As might well be expected, more than a single force is generally effective in adsorption, and de Boer gives a number of examples, of which those on facing page are excerpts.

But various totals may be obtained dependent upon positioning of the chloride ion on the sodium ion.

are silica gel, carbohydrate or protein. Mutual dipole forces between the molecules of successive layers of water assist in increasing the heat of adsorption, while simultaneously the entropy may be greater than in the liquid state.

Detergent System

Discussions of the attractive and repulsive forces involved in

the attracted ions, the total change in the second layer extending over a distance giving rise to a diffuse double layer, the interaction between these layers giving rise to electrical repulsive forces not of simple Coulombic character.

The attractive forces are of three types (25): Mechanical, electrostatic, and sorptive. Most difficult to assess are the mechanical forces active with small particles, but it was suggested that this effect may have been overemphasized. Electrostatic forces are acquired prior to entrance into a detergent bath, and though possibly high in air, their effect becomes negligible in a highly polar aqueous medium. The most important bonding forces in the detergent system: (25) are the London-van der Waals adsorptive forces of attraction, apparently universal in their action between atoms, ions, and molecules. Though these forces are very short range, that between atoms varying as r 7 (where r is the distance between particle centers) they are assumed as additive in character so that the total attractions between two assemblies of atoms (or colloidal particles) becomes relatively long range, the forces varying as r 3. Though these forces are not amenable to modification by the detergent solution composition, they vary with soil particle size.

The total interaction between soil and fiber is comprised of the Born and double-layer interaction (surface potential) repulsive forces, and the London-van der Waals attractive forces. The model system used was that of a plane fabric surface and spherical soil particles. These electrical conditions at the interface were evalnated by Durham and the force between fiber and soil was shown as resultant total interaction potential of the superposed three potential curves. He indicated that a soil particle, at all practical dis-

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Ion on metallic surface	
Cesium ion on tungsten	
Image force (induction of metal by ion)	47.5 kcal/mole
Nonpolar v.d.W. forces	13.3 kcal/mole
Induction of ion by own image	1.4 kcal/mole
Induction of metal by induced dipole in ion	0.3 kcal/mole
Total	62.5 kcal/mole
Less-contribution by repulsive forces	80 kcal/mole
Total	54.5 kcal/mole

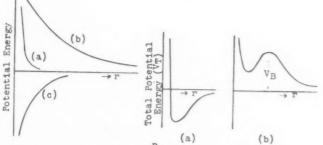
The foregoing examples indicate the relative total energies for different systems and suggest estimates of the relative magnitude of the effects of different types of adsorption.

Multimolecular adsorption frequently provides sigmoid type curves. However, this is not proof of multilayer adsorption, since the sigmoid shape may result from adsorption first on the most active sites, followed later by an energy increase from the mutual nonpolar van der Waals forces between the adsorbed molecules. Multimolar layers of small molecules with a large permanent dipole (water) may be adsorbed on ionic surfaces and polar sites. Examples

the detergent system are as yet likely to be qualitative, since quantitative measures are difficult to achieve.

Since surfaces appear to retain soil so tenaciously, the weaker repulsive forces, of substrate/soil and soil/soil will be examined first. Repulsions of the Born and double layer types were discussed by Durham (25). He indicated that the very short range Born repulsive forces between soil particles and fiber have relatively minor influence on the over-all process. Concerning the electric double layer, he pointed out that the electrical attraction of oppositely charged particles is counteracted by the thermal motion of





Representation of potential energy curves for forces in a detergent system.

- Born repulsion
- Double-layer repulsion London-van der Waals' attraction
- Potential energy curves for the superposition of forces in a detergent system.

Weak double-layer repulsion

Strong double-layer repulsion

Olfaction Symposium Subject

THE psychophysical, physiological, and chemical approaches were brought to bear on the riddle of odor perception by man at the seventh annual symposium of the American Society of Perfumers. Under the chairmanship of Christian Wight, International Flavors & Fragrances, Inc., (New York) the gathering was held in the afternoon of April 13 at the Essex House in New York City.

The formal program got under way with an address of welcome by Harry Cutler of Revlon, Inc., New York, president of the society, which was followed by Mr. Wight's introductory remarks.

A preliminary discussion of the basics of olfaction started the

technical part of the session. It was presented by Dr. William Amols, Assistant Professor of Clinical Neurology, College of Physicians and Surgeons, Columbia University, New York. At least 30 theories of olfaction have been in vogue over the years. Dr. Amols said. They have agreed on one point only: To be odorous, a substance must be volatile. Current theories link odor to molecular structure, and efforts to pin down the basic truth about olfaction shifted to the field of biochemistry from former emphasis of the biological angle.

Dr. Trygg Engen, Associate Professor of Psychology at Brown University, Providence, R. I., spoke on "Identification of Odors." He described experiments with non-professional individuals, results of which indicated that the average observer can fairly easily learn to identify three levels of odor intensity. The naive observer was found to identify without error about 16 categories of odor quality.

Accuracy of identification appeared to depend in part on the training of the observer, intensity characteristics of the stimuli, and selection of odors.

In addition to the olfactory nerve, the vomeronasal and the trigeminal systems are involved in odor perception, according to Dr. Don Tucker, Research Associate,

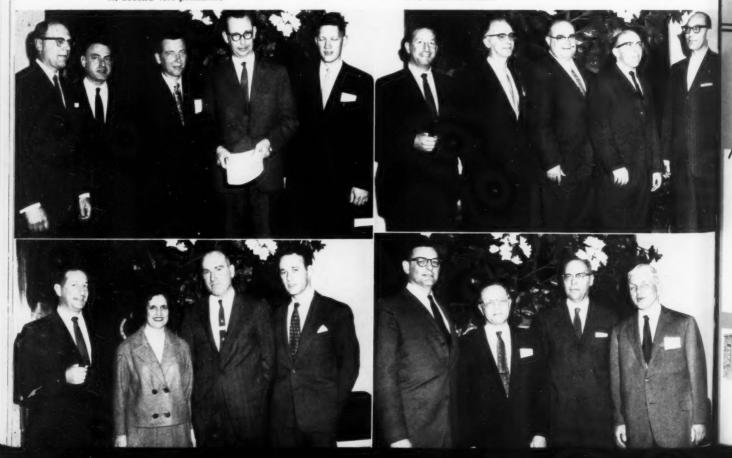
(Turn to Page 127)

Top left, l. to r.: Symposium chairman, Christian Wight, International Flavor & Fragrances, with speakers: Dr. William Amols, Dr. Don Tucker, Dr. M. G. J. Beets and Dr. Trygg Engen.

Society's officers and director, top right, l. to r.: Bernard Polak, board chairman; John Hancock, first vice-president; Edwin D. Morgan, treasurer; Harry Cuttler, president, and Edward Schuster, second vice-president.

Directors, l. to r., bottom left: Bernard Polak, chairman; Miss Josephine Catapano; August J. Schwindeman, and Dr. Steven Iellinek.

Committee in charge of arrangements for symposium, bottom right, l. to r.: Jacques Masson; Paul I. Lauffer, Christian Wight, and Alfred Moeller.





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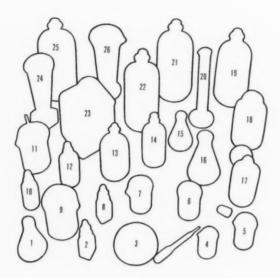
A PERFUME OF PARTS



HERE, IN TWENTY-SIX PARTS, IS FRAGRANCE COMPOUND No. 35062

You can identify these individually by referring to the numbered diagram backing this insert. Note that the list includes aromatic chemicals, complex specialties and materials of both animal and botanical origin. Obviously, it was the artistic blending and balancing of these materials by our perfumers that made this very attractive FRITZSCHE creation possible. But behind this accomplishment lies a long record of painstaking care in the selection, manufacture and processing of all of its ingredients. In the case of those botanically derived materials, this actually extends back to their various countries of origin—sometimes halfway around the world! As we see it, this is as it should be, for as supplier, processor and guarantor of such materials, it is our responsibility to provide the best that can be made, and to do that requires complete supervision from original source to finished product. Only by this means can we solicit your business with confidence and assurance of satisfaction to YOU.

KEY TO PHOTO (on facing page)



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- 21. ise-AMYL SALICYLATE—Clifton produced synthetic.
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- 23. CINNAMIC ALCOHOL—Clifton produced syn-
- 24. LINALYL ACETATE 90/92% ESTER FROM BOIS DE ROSE—Clifton produced synthetic.
- 25. OIL BERGAMOT RECONSTITUTED F.B.—F.B.
- 26. OIL ORANGE USP CALIFORNIA COLD-PRESSED—Exchange Brand.

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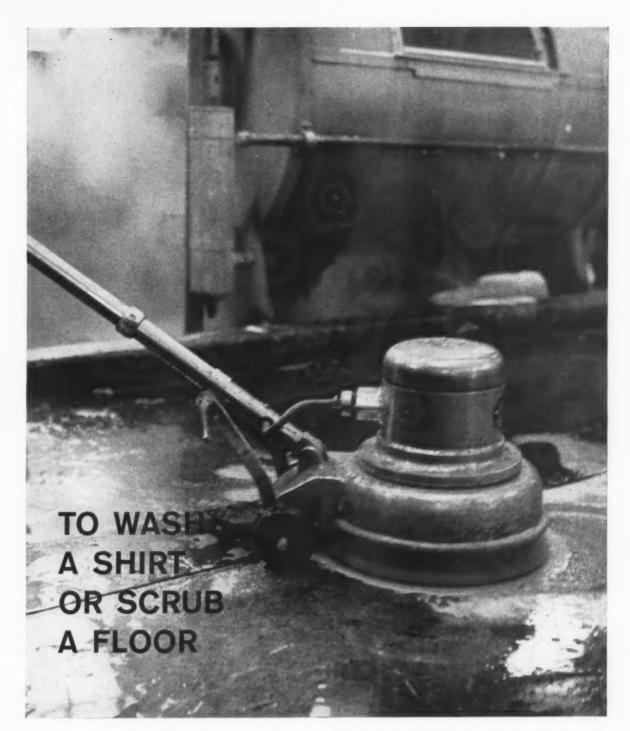
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MAY, 1961

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RHOPLEX B-83 formulation	94
Commercial polystyrene polish	95
Commercial acrylic polish	88



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New edition of the Compilation of Economic Poisons (Pesticides) Laws has just been announced by Chemical Specialties Manufacturers Assn. Covering both state and Federal laws, compilation has been in preparation for over a year under the supervision of John D. Conner and Robert L. Ackerly, counsel for the association. Preparation and production of 8½ x 11 inch book were handled by CSMA staff. See story on page 233.



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*"deet" is the common name officially adopted by the Entomological Society of America for the meta isomer of diethyltoluamide

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Putpose: This compilation prepared by John D. Conner and Robert L. Ackerly, CSMA counsel. It brings together in one volume laws and regulations of especial interest to manufacturers, packers and sellers of insecticides, fungicides, disinfectants, rodenticides, sanitizers and many related products. To replace former small volume which should now be discarded as obsolete.

Description: Printed on bond paper, 8½ x 11; looseleaf in heavy duty, three-ring, leatherette binder so yearly additions and revisions may be included. Equipped with subject dividers and index tabs. About 500 pages.

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Epoiene HDE emulsifiable • The first high-density emulsifiable polyethylene available, Epolene HDE is much harder than other resins in the series, yet quite easy to handle. A film of unmodified Epolene HDE emulsion is almost as hard as a film from a finished floor-wax formulation (rebuffable type). This increased hardness is due not only to the nature of this high-density polyethylene, but also to the fact that it is more compatible with oleic acid than are other emulsifiable polyethylenes. Epolene HDE restores rebuffability to polymer-containing polish formulations without sacrificing hardness.

Epolene N non-emulsifiable • Epolene N can improve significantly the properties of paraffin, microcrystalline or other waxes and is easily blended with these materials. It can replace part or all of the hard waxes in solvent paste polishes, for example, automotive polishes. Such polishes are characterized by low color, excellent hardness and gloss, and remarkable durability.

Epolene LV non-emulsifiable \bullet Epolene LV and Epolene N are useful in similar applications. The LV type is softer than Epolene N, however, and because of its lower melt viscosity is somewhat easier to handle.

Epolene HD non-emulsifiable • An extremely hard material, Epolene HD is nevertheless easy to handle because of its low melt viscosity. It has a high softening point, and may be blended with waxes to increase their melting points. Epolene HD has a higher density than the other non-emulsifiable polyethylenes in the series.

Epolene C non-emulsifiable • Higher in molecular weight (7000) but lowest in density (0.907) of all the Epolene resins, Epolene C may be used in modifying waxes to increase melting points or to improve toughness and gloss.

Eastman now offers polish formulators 7 basic types of polyethylene

New Epolene resins enable you to formulate broader range of liquid and paste polishes

Туре	Molecular Weight	Brookfield Viscosity (cps. @ 120°C.)	Density	Penetration Hardness (100g./5sec./ 77°F., 10ths of mm.)
Epolene E	2500	1500	0.938	2
Epolene HDE	1500	455	0.956	1
Epolene LVE	1500	400	0.939	5
Epolene N	2500	2500	0.928	1
Epolene HD	1500	340	0.938	0.5
Epolene LV	1500	360	0.925	3
Epolene C	7000	16,000	0.907	7

If you are using low-molecular-weight polyethylenes in your polishes, investigate the complete Epolene series. Your Eastman representative will gladly explain the advantages of each of the resins in the series and will show you how to realize the most profitable use of them in your formulations. Ask him for specific formulating assistance and about the new time-saving, cost-cutting emulsifying technique developed at our laboratories.

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47th CSMA Midyear Meeting

Specialties for outer space will be featured at Chicago gathering of Chemical Specialties Manufacturers Association, May 15, 16 & 17

HE proposed tough new regulations for the enforcement of the hazardous labeling law are certainly the hottest issue under discussion at the current 47th midyear meeting of the Chemical Specialties Manufacturers Association. The meeting got under way Monday, May 15 at the Drake Hotel, Chicago, and will be in session through Wednesday, May 17.

The long awaited regulations which are summarized beginning on page 19 of this issue will be presented by Dr. Emil G. Klarmann, chairman of CSMA's Precautionary Labeling Committee, during the general session scheduled for Wednesday morning, May 17. A lively discussion is expected.

Prior to the meeting's formal opening, divisional committees, subcommittees, and division executive boards met on Monday, May 15. The day started with breakfast meetings at 8:00 A.M.

and concluded with the Board of Governors meeting at 5:00 P.M. The board meeting continued through dinner and late into the evening. Future programs were discussed, past activities reviewed and evaluated.

An "Aero-Space Program" scheduled jointly by the Automotive Division and the Detergent and Cleaning Compounds Division for Tuesday afternoon, May 16, is doubtless the most topical of all technical sessions. It will take the form of a symposium on "Chemical Specialties in the Aero-Space Industry." Lawrence B. Hall, Department of Health, Education, and Welfare, will be one of the four participants.

Concurrently with the aerospace session, on Tuesday afternoon, there will be a continuous motion picture program. Movies to be shown include among others "New Developments for Modern Living" by Sandoz, Inc., New York; and "Petrified River – A Story of Uranium" by Union Carbide Chemicals Co., New York.

In addition to Dr. Klarmann's report, mentioned earlier, Wednesday morning's general session will hear a paper entitled "Factors Relating to Ingestion Hazard," by R. Owen Carter and John F. Griffith of Procter & Gamble Co., Cincinnati. Association officers will present their reports.

At Wednesday's luncheon, CSMA president Charles E. Beach of John C. Stalfort Sons., Inc., Baltimore, will deliver his presidential address.

The program set for the two sessions of the Waxes and Floor Finishes Division calls for a panel discussion on the safety of waxed floors, which was to have been held on Tuesday morning, and a symposium entitled "Floor Finishes — What's New," set for Wednesday afternoon, May 17.

Most eagerly awaited fea-

Charles E. Beach, president



Charles E. Allderdice, Jr.



Frederick G. Lodes.



ture of the Aerosol Division's program set for Wednesday afternoon will be the aerosol products survey to be presented by E. E. Husted of Union Carbide Chemicals Co., New York. A joint session was to have been held by the Aerosol Division and the Insecticide Division

on Tuesday morning, its subject-"Aerosol Insecticides."

Another product survey scheduled for presentation at the meeting is automotive products survey, which was to have been revealed at the Automotive Division's meeting on Tuesday morning, May 16. H. L. Haller of the U. S. Department of Agriculture in Washington, D. C., will report "Personal Observations on Pest Control in Russia and Other European Countries" before the Insecticide Division's session on Wednes(Turn to Page 94)

47th midyear meeting program Chemical Specialties Mfrs. Assn. Hotel Drake, Chicago, May 16-17

Monday, May 15

8:00 A.M.—Divisional Committees and Division Executive

5:00 P.M.—Board of Governors Meeting

Automotive Division Tuesday Morning, May 16

French Room
A. E. Tongue, presiding

9:00 A.M.

Au-1—Address of Division Executive Board Chairman—
A. E. Tongue, Olin Mathieson Chemical Corp., Baltimore,
Au-2—Report of Nominating Committee—Election of Divi-

sion Executive Board for 1962

Au-3—Report of Marketing Committee—C. A. Weslager (Chairman), E. I. du Pont de Nemours & Co., Wilmington, Del.

Au-4—Report of Scientific Committee — Robert C. Barker (Chairman), Gulf Research & Development Co., Pittsburgh Pa

Au-5—Report of Program Committee—N. F. Gurley (Chairman), Simoniz Co., Chicago.

Au-6—Report of Haxardous Substances Labeling Laws Committee—C. M. White (Chairman), Olin Mathieson Chemical Corp., New Haven, Conn.

Au-7—Report of Products Committee—J. M. Hogrefe (Chairman), Union Carbide Chemicals Company, Division of Union Carbide Corp., New York.

Au-8-"From the Cradle to the Consumer"-Art Connolly, Simoniz Co.

Au-9—"What's Ahead in the Changing Automotive Specialties Market"—James W. Partner, Audits & Surveys Co., New York.

Au-10—"The Effect of Mineral Impurities in Water on the Corrosion of Aluminum and Steel"—Leonard C. Rowe and Monte S. Walker, General Motors Corp., Warren, Mich. Delivered by: Leonard C. Rowe

Disinfectant and Sanitizers Division

Georgian Room Claude J. D'Angio, presiding

9:00 A.M.

DS-1—Address of Division Executive Board Chairman— Claude J. D'Angio, Airkem, Inc., New York.

DS-2—Report of Nominating Committee—Election of Division Executive Board for 1962

DS-3—"Certified Prducts List"—A. G. Bowers, The Pioneer Manufacturing Company, Cleveland, Ohio.

DS-4—Symposium on Environmental Control of Microorganisms—Moderator: Arnold Lada, Onyx Chemical Corporation, Jersey City, N. J.: DS-4a—"Germicides as Factors in the Epidemiology of Hospital Infections"—Lawrence B. Hall, Department of Health, Education and Welfare, U. S. Public Health Service, Savannah, Ga.: DS-4b—"Some Observations on the Microbiology of the Hospital Environment"—V. W. Greene, University of Minnesota, Minneapolis; DS-4c—"Current Status of Virus Inhibition"—Henry J. Wisniewski, Virus Laboratory, Milwaukee Health Department, Milwaukee; DS-4d—"Enforcement Activities with Hospital Germicidal Chemicals Under the Federal Insecticide, Fungicide and Rodenticide Act"—L. S. Stuart, Pesticide Regulation Branch, Plant Pest Control Division, A.R.S., U. S. Department of Agriculture, Washington, D. C.

Waxes, Polishes and Floor Finishes Division

Walton Room Earl Brown, presiding

9:00 A.M.

W-1—Address of Division Executive Board Chairman—Earl Brenn, Huntington Laboratories, Huntington, Ind.

W-2—Report of Nominating Committee—Election of Division Executive Board for 1962

W-3—"Products and Raw Materials of the European Polish Industry"—Wolfgang Sapper, Farbwerke Hoechst A.G., Anwendungstechn, Labor, Werk Gersthofen, Gersthofen, West Germany

W-4—Panel Discussion on "Waxed Floors Are Safe"—Moderator: to be announced; W-4a—"The Technical Aspects of Alleged Negligence From the Use of Floor Wax"—J. Vernon Steinle, S. C. Johnson & Son, Inc., Racine, Wis.; W-4b—"The Legal Aspects of Liability Arising From the Use of Floor Wax"—John D. Conner, Cummings and Sellers, Washington, D. C.

W-5—Report of the Scientific Committee—Gerard R. De-Napoli, (Chairman), Masury-Young Co., Boston.

Aerosol Division and Insecticide Division

J. J. Tomlinson and Alfred Weed, presiding

9:00 A.M.

A.I.I.—Symposium on Aerosol Insecticides — Moderator:
A. C. Miller, Gulf Research and Development Co., Pittsburgh, Pa; A-I-la—"Space Formulations—Up To Date"—
John Odeneal, Fairfield Chemical Division, Food Machinery and Chemical Corporation, New York; A-I-lb—"Residual Formulations—Up To Date"—J. E. Bussart, Velsicol
Corporation, Chicago; A-I-lc—"House and Garden Insecticides—Up To Date"—Eugene F. Mace, S. C. Johnson
and Son., Inc.; A-I-ld—"New Methods of Aerosol Application"—A. H. Yeomans and R. A. Fulton, U. S. Department of Agriculture, Beltsville, Md., Delivered by: A. H.

Yeomans; A-I-le-"Propellants Up To Date"-Robert J. Peterson, Peterson Filling & Packaging Company, Danville, Ill

Tuesday Afternoon, May 16

12:30 P.M.-Luncheon-Gold Coast Room-Charles E. Beach. presiding (President CSMA); Address by Dr. Clifford Rassweiler, vice president for reasearch and development, Johns-Manville Corp., New York.

Automotive Division and Detergent and Cleaning Compounds Division (Aero-Space Program)

Joint Session-Grand Ball Room N. F. Gudley and R. K. Rigger, presiding

2:15 P.M.

AU-DC-1--Address of Detergent and Cleaning Compounds Division Executive Board Chairman-Lester D. Berger, Jr., Union Carbide Chemicals Co.

AU-DC-2-Report of Detergent and Cleaning Compounds Division Nominating Committee-Election of Division Ex-

ecutive Board for 1962

AU-DC-3—Symposium of "Chemical Specialties in the Aero-Space Industry": AU-DC-3a—Introduction—W. S. Jessop, U. S. Sanitary Specialties Corporation, Chicago; AU-DC-3b—"Silicone Rubber as Thermal Coatings for Missiles and Space Vehicles"—Milan E. Groby, Silicone Deadless Dea Dept., General Electric Company, N. Y.; AU-DC-3c-"Cleaners in the Aero-Space Field"-Marvin Weast, R. M. Hollingshead Corporation, Camden. N. J. Delivered by: Stanley W. Coryell; AU-DC-3d-To be Announced-Lawrence B. Hall, Department of Health, Education, and Welfare, U. S. Public Health Service, Savannah, Ga.; AU-DC-31-Concluding and Summary Remarks Charles E. Allderdice, Jr., The Bell Co., Chicago.

Tuesday Evening, May 16

5:30 to 9:00 P. M. Company "Open House 9:00 P.M. to 1:00 A.M.

"Club CSMA"-Hotel Knickerbocker

Wednesday Morning, May 17

General Session Grand Ball Room Charles E. Beach, presiding

9:45 A.M.

Report of Secretary, A. A. Mulliken

Report of Treasurer, Fred G. Lodes, Lodes Aerosol Consultants, New York

Report of CSMA Counsel. John D. Conner, Cummings, Sellers, Reeves & Conner, Washington, D. C.
"Factors Relating to Ingestion Hazard." R. Owen Carter

and John F. Griffith, Procter & Gamble Co., Cincinnati, delivered by R. Owen Carter

Report of Precautionary Labeling Committee-Emil G. Klarmann, chairman, assisted by George T. Scriba, vice chairman and Robert L. Ackerly, counsel; question per-

Wednesday Afternoon, May 17

12:30 P.M.

Luncheon-Gold Coast Room-Donald T. Templeton, pre-

Address of CSMA President-Charles E Beach, John C. Stalfort & Sons, Inc., Baltimore

"You Don't Have to be Crazy or What It Takes to Be a Salesman"-William H. Upson

Aerosol Division

Walton Room George Barr, presiding

2:15 P.M.

A-1-Address of Division Executive Board Chairman-George Barr, G. Barr & Co., Chicago

A-2-Report of Nominating Committee-Election of Division Executive Board for 1962

A-3-Report of the Aerosol Product Survey Committee-E. E.

Husted, (Chairman), Union Carbide Chemicals Co.

A-4—"Compatibility, With Aluminum, of a Number of Chemicals Used by the Aerosol Industry"-F. M. Howe and M. Languedoc, Connecticut Chemicals (Canada) Limited, Toronto, Ont., delivered by: Michael Languedoc A-5—"Aerosol Powders"—D. C. Geary and R. D. West,

Union Carbide Chemicals Co., Technical Service Laboratory, Tarrytown, N. Y. delivered by: D. C. Geary

A-6—"Nitrous Oxide as a Propellant for Non-Food Aerosols"

—John S. Hinn, Air Reduction Co., Madison, Wis. A-7—"Stabilization of Alcohol-Based Aerosols"—Frank A. Bower and Laurence J. Long, Jr., E. I. du Pont de Nemours & Co. delivered by: Frank A. Bower

Insecticide Division

Georgian Room Mark L. Hill, presiding

I-1-Address of Division Executive Board Chairman-Mark L. Hill, Gulf Oil Corporation, Philadelphia, Pa.

I-2-Report of Nominating Committee-Election of Division Executive Board for 1962

I-3-Personal Observations on Pest Control in Russia and Other European Countries"-H. L. Haller, Agricultural Research Service, U. S. Department of Agriculture, Wash-

I-4-"The Face Fly-Its Problems and Control"-George C. Decker, Illinois Natural History Survey, Urbana, Ill.

1-5—"Your Market"—Andrew B. Meldrum, Meldrum and Fewsmith Advertising Agency, Cleveland.

I.6—"Household Pests — A Flannelboard Presentation" — Speaker from the Federal Extension Service, U. S. Department of Agriculture, Washington, D. C.

I-7-"Butonate, A New, Safer Household and Industrial Phosphonate Insecticide"-Robert D. Sharp, Prentiss Drug and Chemical Co., New York

Waxes, Polishes and Floor Finishes Division

Grand Ball Room Gerard R. DeNapoli, presiding

2:15 P.M.

W-6—Panel Discussion on "Floor Finishes—What's New":
W-6a—"Lacquers"—R. F. Wint, Hercules Powder Co.,
Wilmington, Del.; W-6b—"Polyurethane Floor Finishes" -J. M. Stanton, Cargill, Inc., Minneapolis; W-6c-"Designing Floor Surfacings That Last"-C. V. Wittenkyler, Shell Chemical Co., Union, N. J.

Detergent and Cleaning Compounds Division and Disinfectant and Sanitizers Division

Joint Session-French Room Lester D. Berger, Jr., and Arnold Lada, presiding

-"Control of Transmission of Bacteria by Textiles and Clothing"-Ethel McNeil and Maurice Greenstein, Clothing and Housing Research Division, A.R.S., U. S. Department of Agriculture, Washington, D. C. delivered Ethel McNeil

DC-DS-2—"Synergism of Germicidal Compounds by Surface Active Agents"—Isidore Shafiroff, Hysan Products

DC-DS-3-"Industrial Applications of Phenylmercurials as Anti-Microbials"—Joseph A. Ramp and Nathaniel Grier, Metalsalts Corp., Hawthorne, N. J. delivered by: Joseph

A. Ramp
DC-DS-4—"The Role of Chelating Agents In Detergent
Compounds"—John J. Singer, Jr., Hampshire Chemical Corp., Nashua, N. H.

Wednesday Evening, May 17

6:00 P.M.—Cocktail Party—Grand Ball Room 7:30 P.M.—Banquet and Entertainment—Gold Coast Room

CSMA'S 47th Midyear Meeting

(From Page 92)

day afternoon.

All six divisions of CSMA are electing executive boards during the midyear meeting. New boards take office after the annual meeting in December. Another important function at the midyear meeting is the appointment of a nominating committee which will choose a slate of officers and members of the Board of Governors of the association, to be voted on at the annual meeting in December.

The problem of bacterial cross infection by textiles and clothing will receive attention at the joint session of the Detergent and Cleaning Compounds Division and the Disinfectant and Sanitizers Division set for Wednesday afternoon. The question will be discussed by Ethel McNeil of the Clothing and Housing Research Division of the U.S. Department of Agriculture.

Subjects which pertain to formulation of modern detergent/ sanitizers include a paper on synergism of surfactants and germicides and a discussion of the role played by chelating agents in detergent compounds.

Events will conclude with a cocktail party and banquet on Wednesday evening.

> Alfred A. Mulliken, secretary



An exhibit of precautionary labeling of chemical specialties products is a feature of the 47th midyear meeting of CSMA. Sample packages of specialties made by 20 leading manufacturers serve to illustrate correct precautionary labeling in compliance with recent federal legislation. The exhibit has been arranged under the supervision of Dr. E. G. Klarmann, chairman of CSMA's Precautionary Labeling Committee.

The following have been nominated for election at the 47th midyear meeting as chairman and vice-chairman, respectively, of the division executive boards:

Aerosol Division: George Barr, G. Barr & Co., Chicago, and J. J. Tomlinson, General Chemical Division, Allied Chemical Corp., New York.

Automotive Division: A. E. Tongue, Olin Mathieson Chemical Corp., Baltimore, and Myron A. Frank, Dow Chemical Co., Midland, Mich.

Detergent and Cleaning Compounds Division: Lester D. Berger, Jr., Union Carbide Chemicals Co., New York, and Robert K. Rigger, Wyandotte Chemicals Corp., Wyandotte, Mich.

Disinfectant and Sanitizers

H. W. Hamilton, executive vice-president



Division: Claude J. D'Angio, Airkem, Inc., New York, and Arnold Lada, Onyx Chemical Corp., Jersey City, N. I.

Insecticide Division: Alfred Weed, Olin Mathieson Chemical Corp., Asheville, N. C., and A. C. Miller, Gulf Research & Development Co., Pittsburgh, Pa.

Waxes, Polishes and Floor Finishes Division: Gerard R. De-Napoli, Masury-Young Co., Boston, Mass., and Al Candy, Candy & Co., Chicago, Ill.

USDA Insecticide Handbook

The U.S. Department of Agriculture recently issued a revised handbook, "Insecticide Recommendations of the Entomology Research Division for the Control of Insects Attacking Crops and Livestock for 1961," Agricultural Handbook No. 120, which details the recommended safe uses for chemicals that protect crops and livestock.

The recommendations are intended as a guide for entomologists, research and extension workers, and for various agricultural associations and agencies, rather than for individual farmers. As a result of research during the past year, several new insecticides and more efficient dosages of some previously recommended materials are suggested. Precautions to be followed by insecticide users also have been slightly amplified.

Single copies of the booklet may be obtained for 65 cents from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C.

Robertet Affiliate Formed

Jean Maubert, principle administrator of Robertet et Cie., Grasse, France, recently announced the formation, on March 4th, of a new company, Bomaco, S.A., 75 Rue Victor Mac Auliffe, St. Dennis,

The new company, affiliated with Robertet's world-wide activities, is offering geranium bourbon oil, as well as other Reunion essential oils on the world market.

Brake Fluid and Brake Maintenance

By Stanley W. Coryell and Donald H. Hanson*,

R. M. Hollingshead Corp., Camden, N. J.

YDRAULIC brakes for aumotive use first came of age 36 years ago. Since that time, progress in brake parts, brake design, and brake fluids have marched hand-in-hand. Prior to World War II there were no government or commercial brake fluid specifications, based on actual brake service requirements. During World War II, Ordnance Brake Fluid Specification 2-111 was established, to be followed in 1947 by the first SAE brake fluid specification for moderate duty fluid. Today, 26 states have brake fluid legislation, and Federal legislation regulating the quality of brake fluid that may be sold is soon to be under consideration.

It is interesting to note, that while 26 states have brake fluid legislation, only 19 states have legislation requiring mechanical inspection of automobiles. The first state to initiate such legislation was Pennsylvania in 1929. At that time, the first inspection for brakes, lights and steering resulted in failure of 85% of the cars checked to pass the test requirements. Today, brake defects still account for more inspection rejects than any other single factor. And only one-fourth of the nation's 70 million vehicles are subject to any inspection at all. Automobile associations in the past have attributed to defective brakes close to 30% of all fatal accidents, and such defective brakes are responsible for more accidents than any other mechanical defect or failure.

In states having inspection programs, fewer accidents are caused by mechanical defects than

nationwide averages, and probably contribute less than one-third to accident figures. Obviously, periodic mechanical, and especially brake inspection, pays off. As manufacturers of brake fluids, we in the chemical specialties industry might be able to contribute substantially to a better understanding of brake systems, their care and maintenance, and the proper use and benefits of good brake fluids.

In order to prevent any misunderstanding at the start, it should be noted that all references to brake maintenance concern proper use of brake fluid in automotive brake systems, and the relation of such use to brake maintenance. Brake design, and mechanical practices concerned with such design, will be left to the design engineer and to the many excellent service manuals published for this purpose.

To state our position clearly then, as manufacturers of brake fluids, but not actual brakes or brake parts, we are concerned chiefly with the proper use of brake fluid, when initially installed or in later servicing brake systems. We should be concerned with the proper use of brake fluids, and with the many field problems which have arisen concerning hydraulic brake systems. All too frequently, the brake fluid manufac-

BRAKE FLUID LABELS

BRANDS	Check Fluid Level	Recommended Fluid Change	Fill Height (from bottom of cap)	Recommend System Flush	Standard Pedal Bleeding	Recommend Cleaning Cap	Warning against reuse of bled fluid	Warning against petroleur products
BRAND A	Monthly	6 mos.	1/2 inch	No	Yes	No	No	None
BRAND B	6 mos. & servicing	Mfrs.	1/2 inch	No	Yes	Yes	Yes	None
BRAND C	None	None	Fill to bottom	No	None	Yes	Yas	Yes
BRAND D	Monthly	6 mos .	1/2 inch	No	Yes	Yes	No	Yes
BRAND E	Monthly	None	1/2 inch	No	Yes	Yes	Yes	None
BRAND F	None	None	1/4 inch	No	None	Yes	Yes	Yes
BRAND G	Monthly	6 mos.	1/2 inch	No	Yes	No	No	None
BRAND H	Monthly	6 mos.	1/2 inch	Brand H flushing fluid	Yes (& bleeder)	Ne	No	Strong Yes
BRAND 1	Monthly	6 mos.	I/2 inch	No	Yes	No	No	None
BRAND J	90 days or 5000 miles	None	1/2 inch	No	Owner's Manual	Yes	No	None
BRAND K	1000 miles	None	1/2 inch	No	Yes	Yes	Yes	Yes
BRAND L	1000 miles	None	1/2 inch	No	Yes	Yes	No	None
BRAND M	5000 miles	None	1/2 inch	No	Mfr's Manual	Yes	No	Strong Yes
BRAND N	1000 miles	None	1/2 inch	No	Yes	Yes	No	None
BRAND O	2000 miles	None	1/2 inch	No	Yes	Yes	Yes	Yes
BRAND P	None	Yearly	Maintain 3/4 Full	Warn Against	Yes (& bleeder)	Yes	Yes	Yes

^{*}Paper presented Dec. 7, 1960 during 47th annual meeting, Chemical Specialties Manufacturers Assn., Hollywood, Fla.

turer has been blamed for system failures which have resulted from poor shop practice, ignorance of proper maintenance procedures and occasionally defective parts.

Proper use of replacement brake fluid, in servicing, rebuilding and maintenance of automotive hydraulic brake systems, is vital to us not only as manufacturers, but is also of concern to the service dealer and should be of paramount interest to the automobile owner and brake fluid customer. Brake fluid is the most important chemical used in the automobile. Considering the quantity involved in the average brake system, it is possibly also the least expensive chemical used in the automobile. As brake fluid manufacturers, and particularly as members of the Chemical Specialties Manufacturers Association, what can we do to better the current dissatisfaction with brake service and disappointment in brake system life? Education, better promotion and emphasis on proper brake maintenance, can improve the service expected of brakes and increase reliability of automotive hydraulic brake systems.

Brake Fluid Labels

A good label on a container of brake fluid is one place to start

Table II. Summary of 16 Brake Fluid Labels

Number of labels	%	Recommendation
14	88%	Some periodic check of brake fluid level.
6	38%	Some periodic com- plete change of fluid
16	100%	Suggest a fill level.
1	6%	Flush system.
15	93%	Suggest method or methods for bleeding brakes.
12	75%	Suggest cleaning cap of master cylin- der before addition of brake fluid.
9	55%	Do not caution against reuse of fluid bled from system.
8	50%	Caution against con- tamination of petro- leum products.

educating dealers and car owners about brake fluids and, at the same time, promote proper use and service from brake fluids. We selected at random 16 major brake fluid labels, and summarized some of their directional copy in Table I. Of these 16 labels, seven represent brands of CSMA member companies, and are sold under the manufacturer's own brand name. Of the remaining labels, eight were sold under private label by large reputable disributors. All fluids were made by CSMA member companies. Only one of the 16 checked was manufactured by a non-member of CSMA.

Summarizing some of this copy in Table II, we note:

All but two labels recommend some periodic check of brake fluid level. However, only six recommend a periodic change of the total fluid. All make some recommendation as to fill level.

Only one recommends a system flush. One strongly warns against such flushing.

All but one make some bleeding recommendation.

Only 50% caution against contamination by petroleum products. However, 55% do not caution against reuse of fluid bled from system. 25% do not suggest cleaning the cap of master cylinder before fluid addition.

It would appear that manufacturers of brake fluids are not in agreement as to what constitutes desirable practice when using a brake fluid. The container label very likely is the first contact the customer has with the brake fluid. If directions are adequate and proper, better satisfaction will be realized from use of the fluid, and more reliable brake systems will result. Certainly some upgrading in directional copy is possible. A compilation of suggestions from all of the 16 labels has been made and includes:

1. Avoid spilling on brake lining or car finish. (If spilled on car finish, remove with water at once.)

2. Fill master cylinder to within ½ inch of top, (or to within ½ inch of bottom of cap), when required. (Or within ¼ inch of top) (or, maintain master cylinder ¼ full).

3. Check fluid level once monthly, and fill if required. (Or, check fluid level every 90 days, or every six months) (or, when servicing the brakes) (or every 1000, 2000, or 5000 miles).

4. Clean area around master cylinder filler plug before removing plug to check fluid level. (And also around bleeder screw before bleeding the sys-

5. Change fluid every six months (or, change yearly) (or, for change, see car manufacturer's manual).

6. To bleed the brakes, use standard pedal bleeding method (usually given in great detail) (or, use a pressure bleeder) (or, see owner's manual).

7. Never reuse old fluid. (Or, never reuse fluid bled from system).

8. Avoid contamination by exposure to petroleum products. (Or, never clean parts with kerosene, gasoline or any other petroleum products) (or, keep free from petroleum product Use

Chart 1 Important Instructions
Clean Filler Cap Before Re-

moving From Cylinder.

Brake Fluid should be changed at least once a year. Absorption of moisture reduces the boiling point. Pressure, Heat, Moisture, Age, etc., deteriorate fluid which harms rubber.

and metal.

Cleaning of system with flushing alcohols, previously recommended, should be avoided as flushing alcohol remaining in the system lowers boiling point substantially. Cleaning disassembled parts in alcohol is proper providing parts are dried and coated with brake fluid before assembly for immediate use. When assembling cylinders for stock use EIS AF106 Asembling Fluid only.

Never use gasoline or any mineral oil in connection with any Hydraulic brake parts.

Do not spill any Brake Fluid on Brake Lining or car finish.

Procedure For Cleaning System

All units should be removed, cleaned, thoroughly examined, and properly reassembled or replaced. Write for complete information.

Install master cylinder, fill with fluid or connect to pressure bleeder, and then flush lines with brake fluid before installing wheel cylinders. Throw away fluid discharged during bleeding operation. DO NOT RE-USE! Push some fluid through lines, including hose, until it runs absolutely clean, then install wheel cylinder. If dirt and sludge are pushed through the lines into a newly installed cylinder, this residue sinks to the bottom of the cylinder, will not come out through the bleeder screw, and often causes a new wheel cylinder to leak.

Next, bleed job properly. Use a pressure bleeder—it saves time, fluid, and insures a well bled job. Bleeder is also good for refilling reservoir.

Always keep reserve tank 3/4 full of fluid.

(Reproduced by permission of EIS Automotive Corp., Middletown, Conn.)

only thoroughly clean containers, funnels, etc.)

9. Should examination show regular loss of fluid, system should be checked for leaks,

10. When reassembling parts, insure lubrication by coating liberally with new fluid before replacing them in clean system.

11. Never flush system with anything other than new brake fluid.

With so many important areas unresolved, and with obvious confusion as to what may or may not be desirable, it would be foolhardy to say the least, to offer the semblance of a model brake fluid label at this time. A copy of the label from a can of Eis Brake Fluid, made by Eis Automotive Corp., Middletown, Conn., appears in Chart I. This label embodies all but two of the points listed in the compilation above and, additionally, contains educational information which may be desirable. The authors do not necessarily agree with every point, nor with all of the compilation points, but we do believe this label to be a good one, and certainly representative of what a good label might contain. There are, of course, other labels which could have been selected, and which similarly might be representative.

In observing this label, consideration of the individual points could be a guide as to what might be required on a desirable brake fluid label. Such a label would be the first step in giving to our customers, the best of our experience and knowledge to help them realize optimum service from brake fluid itself.

Important Points

Clean filler cap before removing from cylinder: There should be no quarrel on this point. All of us recognize that cleanliness in handling brake fluid and brake parts will aid in avoiding contamination, and that any grit, soil, or grease getting into the master cylinder will impair its operation.

Brake fluid level should be checked periodically: A periodic check of the fluid level in the master cylinder would reveal instantly

Table III. Water in Brake Fluids

	Miles	Period	Type	P	ercent Wat	er
Company Reporting	of Service	of Service	of Fluid	System	Master Cylinders	Wheel Cylinders
A	-	1 Year	70R2	.56		_
A	-	1 Year	70R2	1.45	-	-
A	-	1 Year	70RI	1.39	-	
A	index.	1 Year	70R1	2.06		-
A	-	l Year	70R1	2.23		
В	15,291	-	70R1		1.2	
В	18,702		70R1			6
В	16,427		70RI			8
В	8,860	-	70R1		2.0	1.25
В	16,652		70RI		.75*	_
C	7,582	_	70R1		.94	.82

any excessive loss of fluid from the brake system. Corrective measures could then be taken. While many recommendations have been made

Brake fluid should be changed periodically: There is a great deal of controversy as to the requirement for some periodical

Table IV. Boiling Point Change With Water **Additions to Brake Fluids**

	Original						
Source	B.P. of	1%	Water		2% Water	3.5%	Water
Info.	Fluid	B.P.	Decrease	B.P.	Decrease	B.P.	Decrease
A	406	356	50	_	_	295	110
	382	332	50	-		276	104
	316	292	24		-	251	55
	266	252	14	_		235	31
	243	233	10	-		217	26
В	322	293	27	277	45	259	63
D	384	334	50	305	79	277	107
	376	345	31	325	51	300	75
	286		-	270	16		
	261	_	-	240	21		_
	348	306	42				-
	332	305	27	-			

"Trends in Brake Fluid Temperatures," Tiffany, Rodger and Markey 3/6/56.

as to when such checking should be accomplished, it is our belief that some regular time interval such as once monthly is ideal. Inspection at service intervals may be too infrequent to catch a failing system.

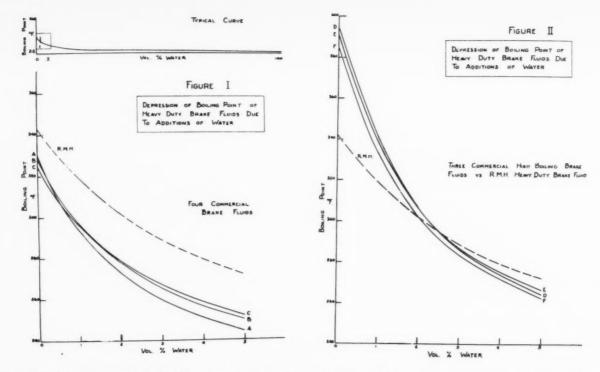
total change of brake fluid in automotive brake systems. It should be noted that of all the various fluids and lubricants used in the automobile, brake fluid is the only one not changed at some regular interval. If a fluid change is de-

Table V. Reflux Boiling Points — Heavy Duty Brake Fluids*

Brake		Vo	lume % Wa	ter Added		
Fluid	0.0%	0.5%	1.0%	2.0%	3.0%	5.0%
A	330	316	296	274	260	244
В	328	310	300	278	266	250
C	325	310	296	283	269	252
RMH	343	330	318	303	289	272
D	395	367	342	310	286	264
E	391	356	335	306	284	266
F	385	358	340	301	285	262
	INITIAL		CRITICA	L RANGE		

*All commercially available and all meet S.A.E. 70R1 specifications. "Effect of Water in Automotive Brake Systems," Sharrard, 12/4/56.

^{*}With Power Brakes.
"Trends in Brake Fluid Temperatures," Tiffany, Rodger and Markey 3/6/56.



sirable, the change period should be selected on the basis of operating data. Such data thus far is indeed small, but the indication is that a total change of brake fluid should be contemplated at some periodic interval. This may be more than, or less than, one year, as some have suggested.

Consideration of moisture absorption alone might indicate the need for a change. Absorption of moisture reduces the boiling point of the brake fluid. Some information has been published on this matter.

In March, 1956, Tiffany, Rodger and Markey in "Trends in Brake Fluid Temperatures," published data showing the quantity of water found in brake systems. (Table III, Water in Brake Fluids). In the same presentation, the effect on the boiling point of brake fluids was noted with various percentages of water added to each fluid. (Table IV, Boiling Point Change With Water Additions to Brake Fluids). Additional information was supplied (Table V, Reflux Boiling Points-Heavy Duty Brake Fluids) on the moisture effect in "Effect of Water in Automotive Brake Systems," Sharrard & Hanson, December, 1956. Data from Table V is also plotted in Figs. I and II.

From field tests, still further information may be given on the boiling point change with respect to moisture accumulation under actual operating conditions. Brake fluids used in the field tests were the same as in the Table V data. Table VI, Results of Field Tests, shows the boiling point change in service, as compared with the amount of moisture determined to be in the fluid. Cars used were from a few weeks old up to 10 years old, and included most major makes. All tests were run in multiples for data correlation, although the table lists different fluids in order to show variations between formulas. The letter designations in Table VI were deliberately changed from those shown with previous data.

The data in this table would tend to bear out the conclusions drawn in the Sharrard-Hanson paper, that a higher initial boiling point reflux is most greatly affected by moisture increments, but at the same time, we have found that the significantly higher boiling points prevail over the life of the fluid. This was one of the reasons for increasing the boiling point requirements in the SAE 70R3 Specification. The difference in curves between various fluids is attributed to different water effects on individual brake fluid components. This was also established by Sharrard-Hanson, and correlated by the test data.

Some of the test data from Table VI has been plotted in Figure III, boiling point plotted against time. No correlation was found between moisture accumulation and general mileage, but significant correlation as against time was obvious in every test case. Note the rapid initial drop in boiling point of the very high boiling fluids, as compared with the lower initial boilers. However, also observe that some higher boiling reserve is indicated with the higher initial boilers, and that the leveling off period is considerably extended.

For the lower boilers, the leveling off period occurs after about three to four months. In our

(Turn to Page 139)

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SOAP and CHEMICAL SPECIALTIES

Insect Resistance Survey--II

Insect . to insecticides found in all 50 states. aper of insects reported showing resistance has increased from two in '58 to 14

By John F. Odeneal,

Fairfield Chemicals,
Food Machinery and Chemical Corp.,
New York

NSECT resistance to once-potent insecticides continues to increase as a problem of national scope and seriousness. Evidence from entomologists had already been accumulated piecemeal for a decade when, two years ago, the first nationwide insect resistance survey was undertaken and its findings disclosed by Fairfield Chemicals, Food Machinery and Chemicals Corp. The findings of that survey* for the first time confirmed the extensive dimensions of the problem.

To gauge more recent changes in the insect resistance pattern, Fairfield Chemicals has completed a follow-up survey. Though significantly expanded in scope, the survey is similar to the preceding study in its method of gathering data. The 1960 findings are drawn from professional opinions and experiences reported by 181 entomologists, county agents and agricultural extension workers. Entomologists again were asked to evaluate resistance to prominent toxicants in their areas and to report their findings.

These evaluations were submitted without experimental evidence. Further, some respondents undoubtedly were not familiar with every insecticide specified in the questionnaire and therefore could not report resistance in such cases. Nevertheless, it remains significant that more reports of positive resistance were received in this second survey than in 1958.

In addition to the two insects - house flies and roaches specifically noted in the original survey, reports of resistance for 14 other insects have been added to the survey. They are: house fly, mosquito, stable fly, deer fly, tabanid, horn fly, hornets/wasps, German roach, Oriental roach, American roach, silverfish, clothes moth, carpet beetle. For the first time, in addition, an attempt was made, in each state, to determine the specific areas of use in which most resistant flies, roaches and mosquitoes had been encountered. The areas pin-pointed are: Farm, home, restaurants, stores/super-

John F. Odeneal



markets and food processing plants. Comparison with the 1958

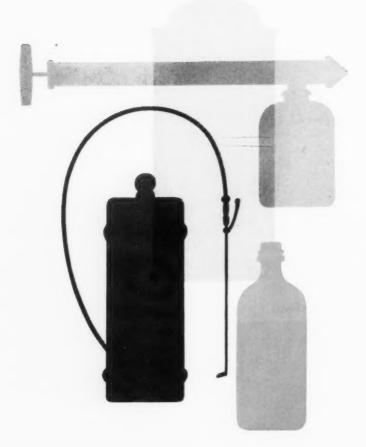
tabulations reveals these changes:

- 1960 resistance reports were received from every state. In 1958, no significant resistance by insects was reported from two states – Montana and Wyoming.
- More state reports indicated increased resistance by house flies in 1960 to these toxicants: Methoxychlor, Lindane, Chlordane, Dieldrin and "Diazinon"**. A smaller percent of house fly resistance reports was received for Malathion, Toxaphene, "Strobane,"*** and "Perthane"†. Both times the identical 100 percent reported house fly resistance to DDT.
- Roach resistance was encountered by a greater percent of those using Chlordane, Dieldrin, Methoxychlor and Lindane in 1960 than in 1958. Lower percentages resulted for DDT and Strobane. Identical resistance report percentages emerged from 1958 and 1960 reports for Toxaphene, Malathion, Perthane and Diazinon.
- Resistance so severe as to require a change in control methods was tabulated by percentage of individual positive replies as

^{*}Published in the April, 1959, issue of Soap & Chemical Specialties.

^{**}Registered trade name of Geigy Chemical Corp., Ardsley, N. Y.

^{***}Heyden-Newport Chemical Corp., New York. †Registered trade name of Rohm & Haas Co., Philadelphia.



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follows: A downturn from 96 percent (1958) to 78 percent (1960) in reported resistance of this severe degree was revealed for house flies. Reports of such severe roach resistance, however, were up from 43 percent (1958) to 48 percent (1960).

Entirely new categories of reports were developed from the expansion of the 1960 survey. For the first time, national mosquito resistance was surveyed. Fly, roach and mosquito resistance by type of location was analyzed. The successful reception of the first survey underlined the need for still broader scope in this study.

Highly important as well, Fairfield Chemicals felt, was the need for indications by state of resistance to toxicants containing chlorinated hydrocarbons and to toxicants containing organo phosphates. Here, 13 insects were covered to gauge the degree of reported resistance to insecticides in both these chemical categories. The

overall tabulation of the 1960 survey, shown in the accompanying chart, is the first national evaluation of its kind, available here in graphic form as an aid to professional pest control operators, insecticide manufacturers and formulators.

Below are the statistical findings for the 181 replies received from all 50 states to the 1960 Fair-field Chemicals questionnaire. (It should be borne in mind that these changes include an extremely wide range of variation, from several percentage points to as high as 60.)

Leading off, 88 percent of the survey respondents answered "Yes" when asked, "Have you encountered resistant insects in your state?" All 50 states were included. (Two years previously, 85 percent answered "Yes" to the same question in 46 states.)

Next came this question:

"For which insecticides has resistance by flies and roaches been noted?" The following percentages emerged from the answers.

	Flies - % by state	Roaches - %
D.D.T.	100%	52%
Methoxychlor	84%	32%
Lindane	72%	34%
Chlordane	66%	78%
Dieldrin	66%	44%
Malathion	54%	20%
Toxaphene	42%	26%
Strobane	24%	20%
Diazinon	30%	0%
Perthane	16%	6%

(Pyrethrum, "Thanite"†† and "Lethane"††† have been omitted, since total resistance reports did not exceed 10 percent for these toxicants.)

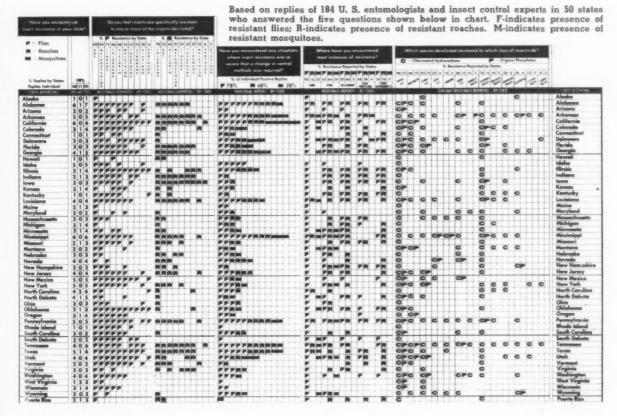
Question Three asked:

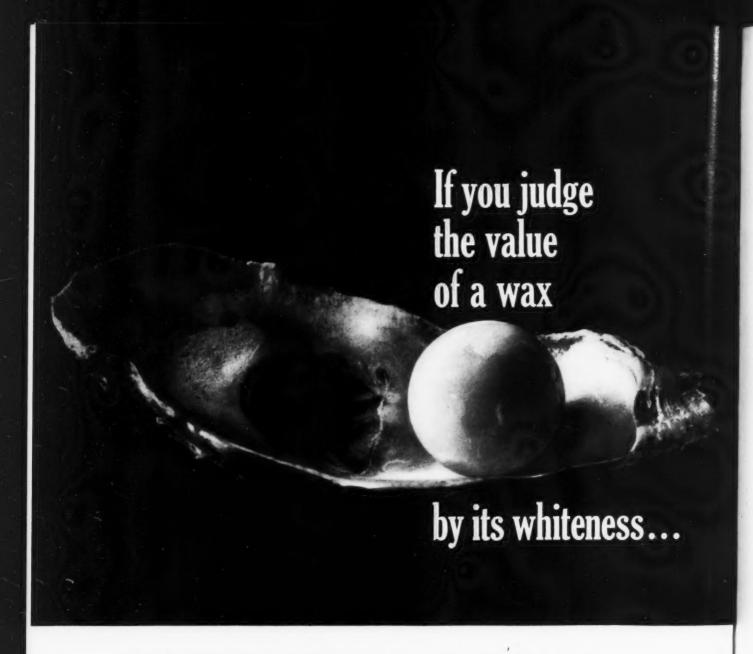
"Have you encountered any situations where insect resistance was so severe that a change in control methods was required?"

For flies, 78 percent of the respondents indicated such resistance had been found; 28 percent

††Registered trade name of Hercules Powder Co., Wilmington, Del. †††Registered trade name of Rohm & Haas Co., Philadelphia.

State-by-State U. S. Insect Resistance Chart





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answered similarly regarding mosquito resistance; while 48 percent reported such roach resistance.

Question Four, an innovation in the survey, attempted to pin-point the areas of greatest resistance for flies, mosquitoes and roaches. The following pattern developed from the replies:

		Reported Roaches	by State Mosquitoe:
Farm	98%	16%	32%
Home	62%	64%	24%
Restaurants Food	50%	66%	0%
processing	48%	36%	4%
Stores/super- markets	34%	56%	0%

Finally, those questioned were asked to check off from a list of insects those in which resistance had been observed to chlorinated hydrocarbons and/or organo phosphates. No effort was made to check on methods used by respondents to determine resistance, or the techniques of application attempted. However, the opinions and experiences of those queried broke down as follows:

Ch	Reported lorinated lrocarbons	
House Fly	98%	50%
Mosquito	48%	10%
Stable Fly	50%	10%
Deer Fly	22%	4%
Tabanid	14%	2%
Horn Fly	38%	10%
Hornets/Wasps	10%	2%
German Roaches	76%	14%
Oriental Roaches	24%	0%
American Roache	s 28%	0%
Silverfish	28%	6%
Clothes Moths	10%	0%
Carpet Beetles	8%	0%

Conclusions

This survey — as its 1958 predecessor — was designed primarily to emphasize the present state of awareness among those individuals working in the field, and to give a rough picture of the extent of resistance which these workers have encountered.

The increasingly widespread picture of resistance stresses that this is a continuing problem requiring greater control efforts on virtually every level. Manufacturers, formulators and pest control operators particularly need to keep abreast of current developments in order to stay ahead of the resistant insect.

As in 1958, the growing obsolescence of many insecticides is re-emphasized by new field reports. As succeeding generations of insects become resistant to toxicants, a series of changes in control methods and formulae are indicated to keep pace with changes in the resistance picture.

The decrease in reports of fly resistance may be interpreted as evidence that newer techniques are receiving acceptance. In many instances of toxicant changes which have ended successfully, the final product used was reported to be pyrethrum or a synergized pyrethrum type spray. This trend was already noted in the 1958 survey. Since then, reports on the application of pyrethrins and synergized pyrethrum have indicated that such control measures scored a high degree of success when other toxicants lost their potency to resistant insect strains.

In the search for concrete solutions to ever-changing pest control problems, at least four kinds of acquired resistance have been noted. My company's surveys have made no attempt to break down incidence reports accordingly; nor, was it felt, could local situations complicating the resistance problem be taken into account. However, the findings in 1960, as well as 1958, emphasize the increasing awareness among field workers of resistance.

Formulators, it can be concluded, should use as yardsticks those states having the most resistant insect populations to measure the effectiveness of their specific products. Manufacturers distributing insecticides to the national market would also do well to be aware of these peak areas, and to tailor their products and literature accordingly.

The laws of biology are im-

mutable. Insects complete their life cycles so rapidly that an ultimate toxicant shows no sign of coming into being. But while no "ultimate weapon" may ever close the "insecticide gap," it is important that modern products be formulated to be as effective as possible in coping with the insect control needs of today – if not looking far enough ahead to meet the control requirements of tomorrow,

Such progress can only come through a program of continuing vigilance, experimentation and readiness to accept changed methods when need for them is revealed by findings which come from local, regional and national levels.

Warfarin Data Mass-Mailed

More than 20,000 portfolios of literature dealing with warfarin and its role in rodent control were distributed in a special mailing in April by Wisconsin Alumni Research Foundation, P. O. Box 2217, Madison 5, Wis. County agricultural agents and their staffs, vocational agricultural instructors, state and municipal health officers were among the recipients of these folders. Each contained ten illustrated booklets, brochures, and specially selected reprints on rodent problems and some material on the history of warfarin and other anticoagulants both as drugs and pesticides.

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A new plant to produce 4,500,000 pounds per year of gluconic acid and sodium gluconate, is now being operated by Industrial Biochemicals, Inc., Edison, N. J. The plant features automated processing techniques made possible by novel fermentation techniques. A spray dried form of sodium gluconate is now available from Industrial Biochemicals. The material is said to be free-flowing, low-dusting, granular in character with a rapid solution rate.

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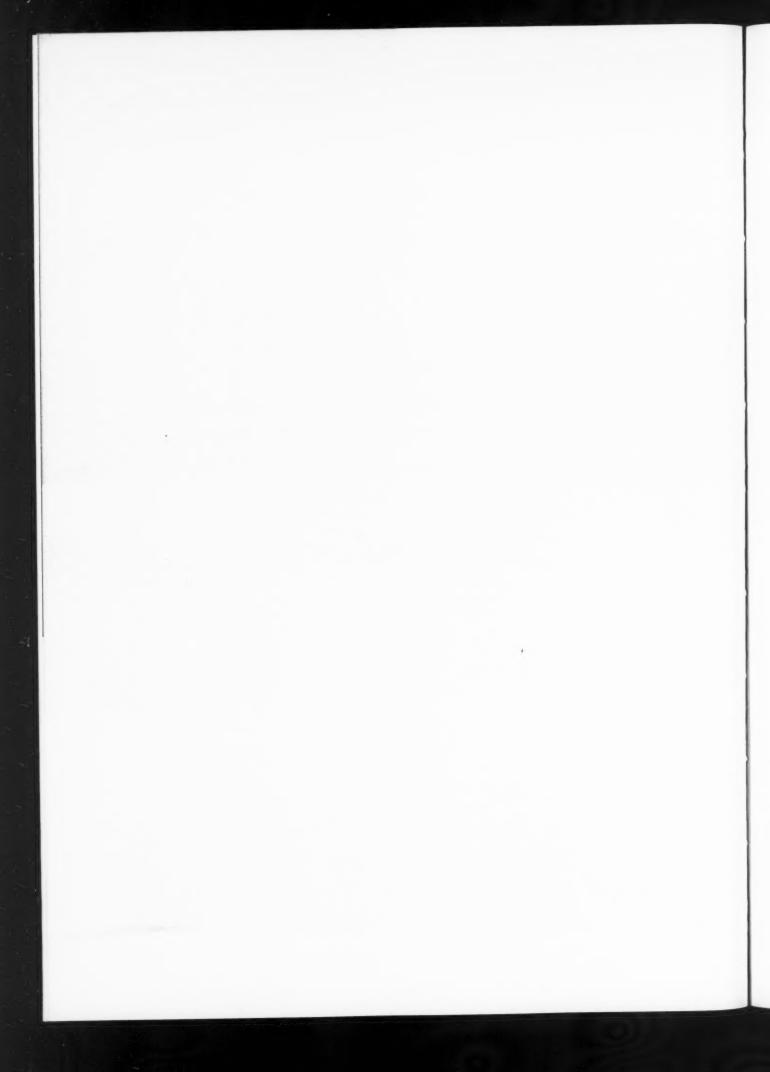
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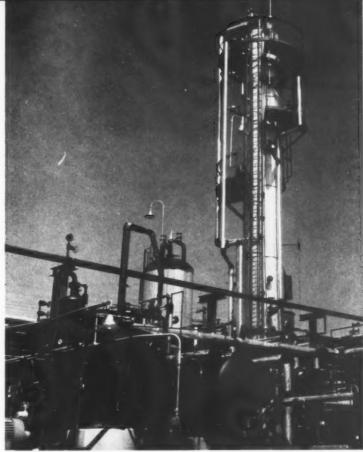
By Alfred A. Kroner,

Kroner Laboratories Great Neck, N. Y.

N floor polishes of the future "polymer latices will play an even greater role than at present but other ingredients such as waxes and resins will also continue to be important constitutents," according to a recently published article by Richard H. Cahill and Lloyd H. Perry (1).

A modern floor polish may contain natural, composition, mineral or synthetic waxes, or combinations of these. Formulators of self polishing wax emulsions are well aware of the properties and performance characteristics of carnauba, candelilla, and other natural waxes. Quite a number of effective wax/resin compositions suitable for floor wax dispersions are on the market today, but their formulas are usually the secret of the manufacturer. More data are available on mineral and synthetic waxes, with which this article is concerned.

The history of these materials during the last 30 years may not be as colorful as the romance of natural waxes described by Nelson S. Knaggs in his book entitled "Adventures in Man's First Plastic" (Reinhold Publishing 1947). However, the development of these man made materials they should really be called 'thermoplastics' - from laboratory to



High melting microcrystalline waxes yielding clear nonyellowing films are turned out at this modern plant operated by Western Petrochemical Corp. in Chanute, Kans. here is propane deasphalting unit.

pilot to production stage has been a task fascinating to all who had a part in it. As a result of this work, today's formulator has at his disposal a wide range of different mineral and synthetic waxes. To guide him in selecting a specific material from a multitude of similar waxes and to ensure that his choice is correct for the purpose in hand, we have set up tables grouping waxes by type and origin and giving their specifications.

Advantages offered by man made waxes over their natural counter parts include uniformity, purity, light color, properties tailored for certain applications; stable prices - usually below those commanded by natural waxes. While all these attributes have stimulated the steadily growing popularity of the man made and modified materials, formulators continue to give preference to natural waxes for certain applica-

Melting point, penetration,

color, solubility, emulsifiability, and compatibility with other waxes and resins are doubtless the most important data in selecting a certain wax for a specific use. However, we have included brief descriptions of the methods whereby the different types of waxes are produced, in the belief that this information will aid the formulator in understanding their performance properties and limitations.

To tabulate all brands of waxes suitable for floor care products and available in the United States would be impossible. We have therefore endeavored to include typical representatives of each category used by the floor polish industry.

Oxidized Microcrystalline

Oxidation with air in the presence of selected catalysts renders microcrystalline waxes saponifiable and darkens them. The color deepens with increasing saponification value. Where lightness of

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color is important the lower saponification value of the paler wax can be compensated for by using suitable emulsifiers and dispersing agents.

Melting points of oxidized microcrystalline waxes range from 180° to 200°F., slightly higher than carnauba. Penetration ranges from 1 - comparable to carnauba - to 7. Generally, the softer and darker waxes have higher saponification values. (Table 1.)

Oxidized Fischer-Tropsch

In the year 1954 the Fischer-Tropsch hydrocarbon synthesis was placed into commercial production by Krupp Kohlechemie in Germany. This process involves the passage of coke derived carbon monoxide and hydrogen over a catalyst bed at controlled temperatures and pressure. Hereby liquid and solid hydrocarbons are formed. The solid components are separated from the liquids by fractionation and further refined by the usual methods of solvent extraction and bleaching. The resulting waxes are white and high melting.

To make these high melting Fischer-Tropsch waxes saponifiable they are subjected to oxidation and other chemical treatment. Solidification points of these waxes vary from 180° to 195°F., saponification values range from 25 to 110. Waxes in this category also darken with increased saponification value. Oxidized Fischer-Tropsch waxes exhibit great hardness, penetration 1 to 4, and pale color. Their presence in floor care formulations produces superior gloss and buffability. (Table II.)

According to the manufacturer the color range of "Duroxon" waxes is N.P.A. 4 or lower. "Duroxon" H 240 is synthesized especially for use in nonionic self polishing emulsions.

Polyethylenes

Commercial production of polyethylene started about 1943. Although still called a resin in the trade, polyethylene is of wax-like character in appearance, pro-

Table I. Emulsifiable oxidized microcrystalline waxes

Name	M.P.	Penetr.	Color	Acid	Sap.
	°F.	77°F.	NPA	No.	No.
Warwick					
Cardis One	195/200	1/3	0/21/2	12/16	45/55
Cardis 314	184/189	4/6	1/3	13/16	45/55
Cardis 319	180/185	5/7	2/4	18/20	65/70
Cardis 320	180/185	5/7	1/3	28/30	75/80
Cardis 262	195/200	3/6	brown	14/17	40/45
Bareco					
Petrolite C-15	180	6	5	15/17	45/55
Petrolite C-23	180	6	5	20/25	55/65
Petrolite C-36	180	7	6	30/35	75/85
Petrolite PE-100	195	3	6	15/20	45/55
Petronauba C	180	5	6	22/28	50/60
Petronauba D	185	5	3	20/28	50/60
Petronauba F	180	5	3	15/25	50/60
Petronauba H	195	3	4	15/25	50/60

perties, and chemical composition as a straight chain polymer of ethylene.

Polyethylene is derived by direct polymerization of ethylene at elevated temperatures under high pressure. By varying processing conditions a wide range of point (about 106°C.), but their effect on floor polishes resembles that of a soft wax with slip resistant properties.

"Epolenes" E 11 and 12 are of lower molecular weight than the other two materials listed in Table III. Their melt viscosities are 455

Table II. Emulsifiable oxidized Fischer-Tropsch waxes

Name	M.P.	Penetr.	Acid	Sap.
	°C.	77°F.	No.	No.
Dura Commodities				
Duroxon H 110	86/89	2/4	22/29	60/80
Duroxon H 111	85/88	1/4	12/17	35/55
Duroxon H 120	87/90	1/3	20/25	48/52
Duroxon H 240	84	2.5/4	35/40	60/70
Duroxon J 324	86/90	1/2	5/9	25/40
Duroxon J 324 V	91/93	1	5/9	25/35

molecular weights may be produced. Low molecular weights (2500 to 3000) are preferable for polish formulation.

About 10 years after polyethylenes made their commercial debut Semet Solvay Petrochemical Division of Allied Chemical Corp. first introduced an emulsifiable grade. Emulsifiable polyethylenes are white and have a high melting

and 400, respectively — about one third of the melt viscosity of "Epolene" E 10. E 11 exhibits better slip resistance and rebuffability, than the other "Epolenes." E 12 is harder than the other compounds in this series and more compatible with oleic acid. It is said to impart good buffability to polymer polishes.

For emulsification of poly-

Table III. Emulsifiable polyethylene waxes

		-			
Name	M.P. °C.	Penetr. Point	Color NPA	Acid No.	Sap. No.
Semet Solvay					
Polyethylene AC 629	100/104	3/6	- 1	14/17	_
Eastman					
Epolene E 10	105/106	2	2	12/16	24/25
Epolene E 11	104/105	5	2	12/16	25/30
Epolene E 12	110/111	1	2	12/16	25/30

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Table IV. Emulsifiable "Hoechst" ester waxes

Name	M.P. °C	Color	Acid No.	Sap.
Hostawax				
Wax E	78/82	light yellow	15/20	145/165
Wax KPS	80/83	yellowish	20/30	135/150
Wax KSS	78/83	yellowish	25/35	120/135

ethylene waxes having melting points of 100°C, and higher the wax-to-water method is generally preferred. Provided jacketed kettles are used, which permit heating to above 100°C, this method can be used also for emulsification of oxidized Fischer-Tropsch and oxidized microcrystalline waxes.

"Hoechst" Waxes

"Hoechst" (formerly I. G.) waxes have been on the market since 1928. They are a group of synthetic wax esters derived from crude or deresinified and bleached montan wax. "KP" wax for example (2) is obtained by oxidation of crude montan wax and subsequent esterification of the oxidation product with a mixture of ethylene and butylene glycol. "KPS" is suggested for floor wax emulsions. It is produced by oxidation of a mixture of deresinified and non-deresinified montan wax and subsequent esterification with a mixture of ethylene and butylene glycol. To obtain wax "S" in this series, crude deresinified montan wax is oxidized vigorously with chromic acid in strong sulfuric acid solution. "OP" is the butylene glycol ester of "S" with some lime added; "E" is the ethylene glycol ester of "S."

The manufacturer suggests self polishing wax emulsions be for-

mulated with "KPS" and nonionic emulsifier "2106." This emulsion is claimed to have gloss properties superior to those of ionic formulations.

Other Man Made Waxes

A number of other emulsifiable waxes made by chemical reaction are being marketed under the designations "polymers" or "plastomers." Some of these miscellaneous materials are listed in Table V.

Summary

What induces a floor wax formulator to change from carnauba to oxidized microcrystalline wax or to emulsifiable polyethylene? Low price and uniformity are not the only inducements. Light color, slip resistance, and rebuffability are among the advantages offered by these newer materials.

The proportion of polymer latices in future floor wax compositions will increase as stated above. The properties of the small percentage of wax present in these combinations will be critical for the performance characteristics of the finished product. Where only 10 to 15 per cent of the formulation is wax, the remainder being polymers and resins, a soft wax-like polyethylene is suggested. For a floor wax containing about 30

per cent wax, a combination of hard and soft waxes is preferred for a glossy, hard and slip resistant film free from stickiness. The highest percentage of waxes (up to 80 per cent) is incorporated in heavy duty buffable floor finishes intended for offices and institutions.

Realizing the variety of formulations and requirements for floor polishes in the household and industrial fields, it becomes obvious that each of the man made waxes has its place in a specific floor wax emulsion.

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Morpholine Data

Morpholine and its derivatives are covered in a technical brochure published recently by Jefferson Chemical Co., 1162 Walker Ave., Houston, Tex. Among Morpholine's many uses are corrosion inhibitors in steam boiler systems and separating agents for volatile amines. Various derivatives are extensively used in wax and polish formulations, bactericides and other chemical specialties.

The Jefferson booklet includes sales specifications, analytical procedures, handling and storage information, and physical and chemical properties. A toxicity statement and an extensive bibliography are appended.

Brochure on New Resins

Texas Butadiene & Chemical Corp., New York, recently issued an eight page brochure describing the chemical and physical properties and potential applications of its SMA resins, a new series of styrene-maleic anhydride copolymers. They have shown promise in improving floor polishes, water based paints, adhesives, and as textile and paper sizing, and in finishing leathers, the company states. The resins are now being produced in semicommercial quantities at new facilities in South Miami, Fla.

Table V. Emulsifiable synthetic waxes

Name	M.P.	Penetr.	Color	Acid	Sap.
	°F.	77°F.	NPA	No.	No.
Warwick					
Cardis Polymer 10	212/216	0-1	1-11/2	8/10	25/30
Cardis Polymer 8	205/210	1-2	0-2	7/10	24/28
Albaplex	200/205	1-2	0-2	7/10	24/28
Cardis 935	210/214	2-3	1-11/2	16/18	38/42
Bareco					
Petrolite C-6500	200	3	4	10/13	30/40
Petrolite C-7500	205	3	2	10/13	25/30

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Headquarters of Risdon Manufacturing Co. in Naugatuck. Conn., where research and development activities are carried

on. Risdon, an aerosol valve producer since 1949, is celebrating its 50th anniversary this year.

Risdon Mfg. Co. 50 Years Old

ALF a century ago, a group of public-spirited citizens Naugatuck, Conn., armed with high hopes and limited resources, joined together to buy a tool works. Their objective was to provide year-round employment in a community where the largest employer shut down during the winter months.

The company they founded, now known as The Risdon Manufacturing Company, exceeded their best expectations. Today, Risdon has four factories in three Connecticut cities and turns out a variety of products, not the least of which are aerosol valves and aerosol containers.

The story of Risdon's growth since 1910 is recounted in "Connecticut Enterprise," a book published recently to commemorate the firm's first 50 years.

A subtle blending of the old and new, of traditional Yankee

"Connecticut Enterprise" produced its first aerosol valves in 1952; later began making aerosol containers for toiletries, cosmetics

conservatism in business matters and pioneer daring in engineering and product development, has been behind Risdon's steady, unswerving growth, as related in the book.

The financial story is reflected by three factors: earnings that soared from \$259.63 in 1910 to \$638,069 in 1959, sales that went from \$13,918.67 in the first year to more than \$10 million in 1959 and dividends that have been paid without interruption since 1917.

Product growth has been equally significant.

The first products made by The Risdon Tool and Machine Co., as the company was then known, were eyelet machine tools and clockmaker's tools to shape gears and sprockets. Over the years

new products have been added, and old products, made unprofitable by changing times, have been eliminated. Today, Risdon's mark of quality appears on a wide variety of drawn metal components, notions, plumbing and laundry accessories, and cosmetic containers, as well as on aerosol valves and containers. The company's plastics division, turns out parts for Risdon aerosol and notions products, and will eventually do contract work for other firms.

Early in its life Risdon acquired a justly earned reputation for aptitude in close tolerance manufacture of metal components. This ability stood the company in good stead after World War II when aerosols came into the conFor the most effective aerosol insecticide use Prentiss new process



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Lewis A. Dibble, Jr.

sumer market, and Risdon undertook to supply other manufacturing companies with the intricate and minute parts that make up an aerosol valve.

The ingenuity of its personnel in solving baffling engineering problems and in getting "extra" service and versatility out of standard manufacturing equipment are two unique Risdon accomplishments. Still another field of excellence has been in automation. Many of the manufacturing operations at Risdon were automated long before that word became standard in industrial vocabularies. Automated machinery, much of it designed and built by Risdon engineers, is a cornerstone of the firm's production operations.

Credit, too, for Risdon's vital growth in its first half century must go to its managerial team — a happy blend of veterans and youth.

Lawrence F. Heileman



Lewis A. Dibble

Lewis A. Dibble, Sr., with Risdon since 1913, and president since 1927, recently was elected chairman/chief executive. Earl Copp, now a director and consultant, who has played a leading role in developing the cosmetic and aerosol divisions, came to Risdon in 1935. Also joining the firm in 1935 was Lawrence F. Heileman, now managing director of the cos-

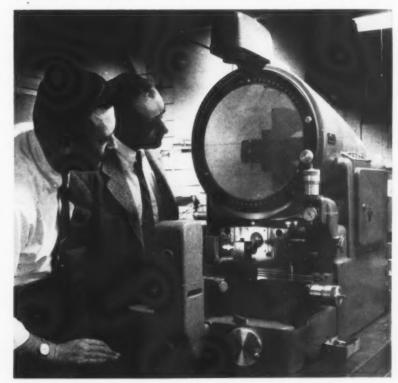


Donald S. Tuttle, Jr.

metic and aerosol divisions. Among the young men who are now helping to guide Risdon's destinies are Lewis A. Dibble, Jr., newly elected president, Donald S. Tuttle, Jr., vice-president in charge of aerosol and cosmetic sales, and Walter C. Beard, Jr., director of research.

One of the best examples of Risdon's unusual ability to join research, engineering and mechan-

Quality control from start-to-finish, Risdon feels, has been an important factor in firm's success in the aerosol field. Here, quality control manager, Harold Wright, and Fred Meffley, Danbury plant manager, examine the profile of an aerosol valve component on a comparator. Part is magnified 120 times to reveal minute defects.



MAY, 1961

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Thorough research and testing precede introduction of any new Risdon product. according to the company. In photo above Walter Beard, Risdon research director, and chemist Guy Sandulli check a batch of aerosol valves being tested under pressure.

icai skills with managerial ability has been the work of its aerosol division.

As a specialist in metal fabrication, Risdon was asked to fabricate many of the components for the valve that Bridgeport Brass developed for early high pressure aerosol insecticides. Production of components for low-pressure aerosol units followed.

On the strength of this experience in a new but promising packaging field, Risdon began more than three years of research and experiment before it was ready to introduce the first Risdon aerosol valve. This thorough exploration before placing a product on the market is typical of Risdon's operation. A regular pattern of design-

Manufacturing techniques are refined through engineering know-how at risdon to achieve the utmost in quantity and quality. Here, a Risdon engineer and draftsman perfect design for a machine that will assemble one of the firm's "Micro-Mist" mechanical break-up actuators.

ing, testing, redesigning and rechecking has evolved from the constant demand for improvements in accepted products and for new products. Newness, Risdon feels, is not the final test of product. The product must be capable of reliably serving a desired purpose.

Risdon's first valve, the JBR, was an all-metal valve, invented by Professor J. B. Reswick of Massachusetts Institute of Technology. Development work on this valve, which remained the Risdon standard valve for several years, was begun in 1949. In that same year, Walter C. Beard, Jr., now Risdon's director of research, joined the company. In the 12 years since then, Risdon has recorded a series of important "firsts" in aerosols.

The initial achievement came in 1954, when Risdon marketed the first practical valve for a glass bottle. The GB (glass bottle valve) is still standard in the perfume, cologne and pharmaceutical industries.

Significant Break-Through

An even more significant break through came with the introduction of the "Micro-Mist," a patented mechanical break-up actuator used to spray all types of pro-



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Efficient method of assembling "Micro-Mist" mechanical break-up actuators is an example of how Risdon Manufacturing Co. applies its engineering know-how. Risdon also produces aerosol containers for many of the leading cosmetic and toiletries firms of the U.S.

ducts, particularly colognes and water base products. When dispensed through conventional aerosol valves, water-base products issue as a stream. The metal insert on the orifice of the "Micro-Mist" actuator causes the liquid to swirl through small channels and emerge as a mist. This ability to produce with any formulation a much finer mist-spray than a simple orifice can create makes the "Micro-Mist" most important to fragrance and pharmaceutical houses.

In addition, the "Micro-Mist" made it possible for many aerosol household products to reach the grocer's shelves. These included "Jet Bon Ami," "Pledge," "Aero-Magic Push Botton" starch, "Aerosol Dri-Glo," "Patent Sparkle," and a lot of others.

Next product on Risdon's parade of "firsts" was the metering valve which gives a pre-determined shot of spray each time it is actuated.

The "Mini-Mist," a decora-

tive container not much larger than a lipstick case, came next. One of the attractions of the "Mini-Mist," other than its diminutive size and attractive styling, is the fact that its utilitarian inner case, which actually holds the aerosol and valve, can be removed and replaced with a refill cartridge.

A large size version of the same idea followed, known as the "Vaniti-Mist."

Among the houses that now package their fragrances in "Mini-Mist" or "Vaniti-Mist" containers, or in both versions, are Lentheric, Ciro, Mary Chess, Max Factor, Revlon, Prince Matchabelli, Faberge, Marcel Rochas and John Robert Powers.

The company's completely non-metallic valve has found ready applications where the contact of formulation with any metal parts might cause corrosion problems. Some of the many packages making use of this valve are Procter & Gamble's "Lilt" home permanent,

"Vaga-Spray" aerosol douche, Abbott's "Tronothane," Max Factor's "Skin Giear" and others.

Most recent Risdon breakthrough is the "Magna-Meter," a large capacity metering var e which can spray products not soluble in any propellant and which will function well with compressed gas. The "Magna-Meter" permits dispensing larger amount per shot than simple metering valves.

Risdon's ability to devise a particular valve for a special application has been the key to the company's success. Working with its standard valves, the GB, the 5210 for metal cans and the metering valve, and with a variety of actuators which at last count totaled approximately 40, Risdon can custom make its valves for an infinite variety of product applications.

Coupled with Risdon's thorough research before a product is placed on the market is an intensive, start-to-finish quality control program which insures almost perfect performance from every Risdon valve. Quality control begins when a new part is designed, so that all possible causes of defective production can be considered and corrected. Then, from the time raw materials are received at the Risdon plant, until the finished valve is shipped to the filler, every step in production is subjected to rigid spot checks.

Not content to stand still, Risdon is constantly designing and testing new valves and actuators in its laboratories in Naugatuck. New applications for existing valves are researched and new combinations of valves and actuators are tried.

In Risdon's development and research department, ideas are translated from theory to reality. Prototype product samples are made, new valves and actuators are designed and pilot production units are set up for future valve lines. Customer formulations are test packaged and studied under normal and accelerated shelf test conditions. Chemists, engineers, tool makers and technicians work

(Turn to Page 254)

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Detergency Forces

(From Page 71)

tances would remain in a net attractive field. Superposition of the three curves as a function of increasing r also showed an initial fall to form a "well" (to the left of V_B in Figure 2 Bb) between the initial point, and a maximum, followed by a minimum in the curve. The potential barrier to redeposition, V_B is said to be about 15 kT (93) for particles larger than 10-5 cm (but most natural soils fall in this size range). It was pointed out that the value of V_B of the figure was controlled by the several factors of surface potential, total electrolyte concentration and ion valency, and particle size.

For a quartz surface it was assumed that the electrical double layer arose principally from ionization of a layer of silic acid on the surface, and additionally to physical adsorption of ions, the surface charge being considerably influenced by cation exchange, particularly in an alkaline medium (69).

If the energy imparted by agitation is less than the energy barrier to redeposition, then redeposition will not occur. However, adequate energy input for soil removal may just equal the redeposition energy barrier and a type of equilibrium would result: Were the mechanical energy input greater than the energy barrier to redeposition, then redeposition could occur more readily. These considcrations show that ease of soil removal is incompatible with particle stability in redeposition prevention.

The work of Compton and Hart (18) with cellulose fiber and carbon particles showed that 1000 calories (2°C temperature differential/500 ml slurry) kinetic or hydrodynamic energy caused large losses of soil from fiber, whereas the development of a 25,000 calorie differential in heat input in their system caused no significant effect

on soil retention.

While Durham's work was restricted to calculations of the various energy interactions between identical spheres and a plate, that of Lange (62) was concerned with both parallel plate energy interactions and those between plates and spheres. At this point it is interesting to note that Kling and Mahl (60) showed that soot and iron oxide were spherical particles, while Powe (76) more recently has shown that a large proportion of natural soil on garments is clay, present as platelets.

In a further discussion of the energy interaction between fiber and soil, Lange (63) suggested that in passing from the solution to the fiber surface the following progression might occur: The Stern double layer, the hydrated ends of the adsorbed detergent molecule, the hydrocarbon chains, then the fiber or soil particle. Each of these layers may have different constants for the van der Waals attractive forces, and it was assumed that the constants for the hydrated layer (Stern layer) and the hydrophilic ends of the surfactant molecules had values similar to those of the wash solution. In other words, a surfactant may cause soil removal by increasing the energy potential due to adsorption, and equalization of the potentials of both fiber and soil.

Kling and Lange (59) pro-

vided excellent examples of the energy interaction effects in the detergent system. Figure 3A shows that doubling the interfacial energy potential 40 decreased the energy barrier for soil removal, at the same time increasing the barrier for redeposition, this improving the detergent process.

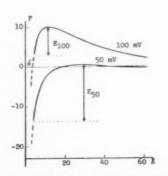
Figure 3B illustrates the effects on the energy barriers produced by doubling the electrolyte concentration, the higher concentration markedly reducing the energy barrier E for both removal and redeposition, promoting both processes. A similar illustration at a single surface potential and electrolyte concentration, but at 4 and 5 Å units for δ, the hydration shell produced by surfactant adsorbed on the fiber, showed that an increase in shell thickness reduced the energy barrier the soil must pass when leaving the fiber.

(To be Continued)

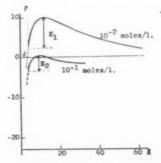
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Figure 3



Energy barriers E_{50} and E_{100} , to be surpassed at the removal of a soil particle, for interfacial potentials $\psi_0=50$ mV and 100 mV respectively. A spherical soil particle with a diameter of 10^{-2} cm., a total electrolyte concentration of 10^{-2} moles/1., and univalent ions have been assumed in calculating the curves.



Energy barriers E_1 and E_2 at electrolyte concentrations $c=10^{-2}$ and 10^{-1} moles/1., respectively, for $\psi_0=100$ mV.

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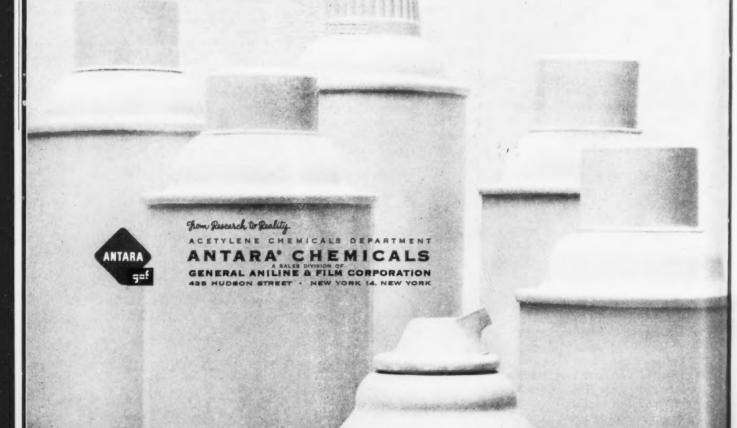
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Olfaction

(From Page 72)

Department of Physiology, Florida State University. The olfactory receptors are not the most sensitive for all odors, he found.

Responses are dependent upon the kind of odor, its concentration in the air entering the nose and the rate of flow of the odorous air through the nose, Dr. Tucker found in his experimental work.

"Structure and Odor" was the subject of a talk by Dr. M. G. J. Beets, Director of Research and Development. L.F.F. Europe, International Flavors & Fragrances, Inc., Hilversum, Holland. He presented an outline of the "profile functional group concept," in which the shape of the molecule and its orientation on the receptor surface are considered as the factors determining quality and intensity of the stimulus.

The speaker correlated this concept with recent developments in structural chemistry and gave various examples from various types of musks, steroids and other classes of compounds to illustrate his comparisons.

The technical program concluded with a discussion period during which Dr. Amols acted as moderator.

Polyethylene Latex Plant

Plans to build a plant for the production of the first commercial polyethylene latex were announced late in April by Spencer Chemical Co., Kansas City, Mo. Construction of the plant was to have started May 1 with completion scheduled late this year. Located at the site of Spencer's Chicago works in Calumet City, Ill., the million dollar plant will have an initial capacity of more than 20,000,000 pounds of latex a year.

Spencer's venture into the manufacture of this new latex marks polyethylene's debut on the market as an emulsion polymer. One of its major fields of application will be in the floor polish industry. Tradenamed "Poly-Em," the new material is described as a milky, odorless liquid containing 40 per cent solids.

Currently available low polyethylene molecular waxes come as solids and must be emulsified prior to use. Their emulsions usually contain about 30 per cent solids, according to Spencer. Films cast from the new latex are said to be tougher, harder, and more flexible than those obtained with the conventional emulsifiable polyethylenes. This, Spencer claims, is to due to the considerably higher molecular weight of the polymer contained in "Poly-Em.

Controlled small particle size, a feature of the new process,

is said to impart high gloss to formulations incorporating the latex. "Poly-Em" polyethylene latex can be produced in anionic or nonionic forms ensuring a wide range of compatibility with different polish formulations. Semicommercial quantities are currently available from a pilot plant at Spencer's research center in Kansas City.

New Certifying Group

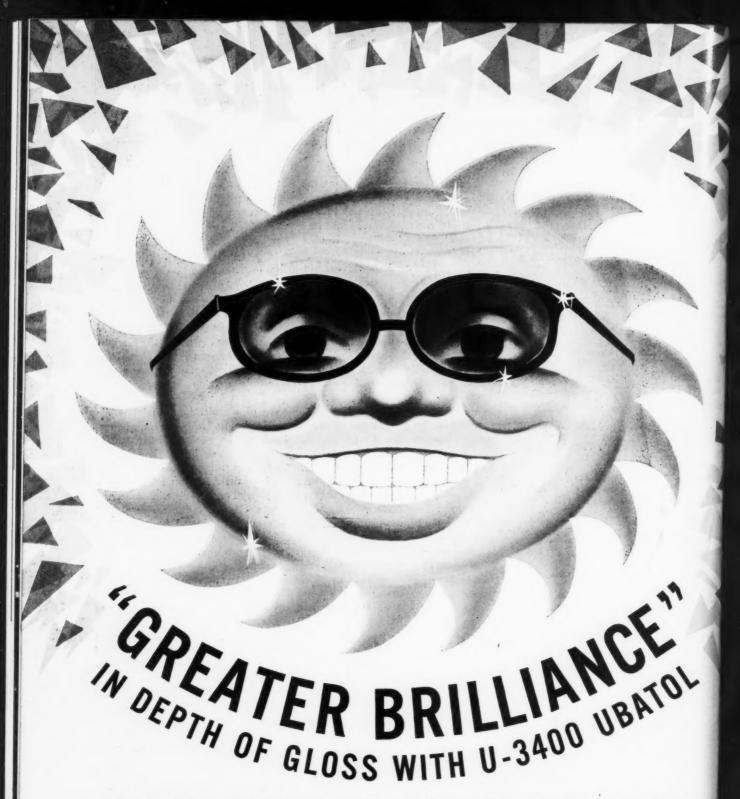
Institutional Research Council Inc., was jointly organized late in April by the American Hotel Association, the American Library Association, the American Motor Hotel Association, the Hospital Bureau, Inc., and the National Housekeepers Association, Inc.

Objectives of the new group include development of product standards for use by large consumers of cleaning and maintenance materials and allied chemical specialties. In addition it will take over sponsorship of the certified products program formerly operated by the American Hotel Association. The council will also serve as a clearing house for results of research conducted by individual members and will select and sponsor research projects of mutual in-

In addition to the organizers mentioned above, the council's original membership comprises the Association of College Unions, the Catholic Hosptial Association of the United States and Canada, and the National Association of Hospital Purchasing Agents.

The Council's first project will be to encourage manufacturers to submit their products for listing in the 1962 Certified Products List, scheduled for release in February. Under the sponsorship of the council, products will have to meet only one set of requiremenst to cover an area which previously required approval by a number of different organizations.

The Institutional Research Council Inc., may be contacted care of the American Hotel Association, 221 West 57th St., New York 19.



A New Acrylic Floor Polish Polymer — U-3400 UBATOL combines the recognized toughness and durability of the acrylates with a level of gloss achievement never before available. For a stand out floor polish that retains its gloss and good looks under the roughest punishment, U-3400 UBATOL is your best bet.

Aside from its clarity and depth of gloss, floor polishes made with U-3400 won't yellow . . . won't powder . . . and have marked resistance to black heel marking. Everything considered, U-3400 UBATOL is best to date. Price is right, too.

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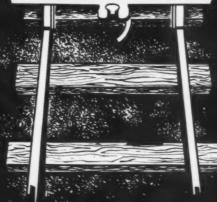
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second coat
whitening with • • •

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Polymers in Emulsification

By James S. Wolff and R. J. Meyer*,

B. F. Goodrich Chemical Co. Cleveland, O.

S noted, lowering interfacial tension of water/oil interface by use of additives significantly reduces the work of dispersion and size reduction of oil droplets. To utilize this advantage effectively, polymers are often used to stabilize emulsions which are based on an anionic or nonionic surfactant as primary emulsifier. Figure 8 is a representation of an anionic system in which primary emulsification and development of a protective charge on oil droplets is a function of a salt of a fatty acid. Orientation of surfactant at water/oil interface provides a relatively thin protective layer on the oil droplet surface characterized by very high ion density. Under these conditions the entire function of the polymer additive is thickening and development of yield value in continuous water phase.

Major component of the thickening mechanism of "Carbopol" polymers is contributed by ionic repulsion of repeating carboxyl groups on the polymer. (4) As a result of high ion density in water phase of anionic surfactant-based emulsions, interference of similarly charged ions causes a reduction in the thickening and yield development of the "Carbopol" polymer. This factor makes use of non-ionic surfactants preferable for primary emulsification.

Several advantages, besides long-term stability, are contributed by "Carbopol" to emulsions during preparatory stages. Mixing conditions generally are much less critical since yield value prevents any tendency toward coalescence during mixing operation. Many emulsions which require careful control of temperature of two phases during mixing can be mixed at room temperature with equivalent results. Dry solid components are uniformly suspended in the emulsion system. Apparent viscosity of the emulsion can be controlled by quantity and type of "Carbopol" polymer added.

An automotive polish formulation demonstrates the anionic stabilized system.

Part A

	Weight
	grams
SF-96 (300) (1)	4.0
"Viscasil" 10,000 (1)	1.0
Oleic acid	2.0
Morpholine	.5
Mineral Spirits	20.0

Part B

	Weight,
	grams
Water	47.5
Triethanolamine (91% solut	ion) 6.5
"Carbopol 934" (1% solution	n) 6.5
"Snow Floss" (2)	8.0
"Super Floss" (2)	4.0
(Add Part A to Part B	with rapid

- (1) Silicone oils supplied by General Electric Co.
- (2) Supplied by Johns-Manville Corp.

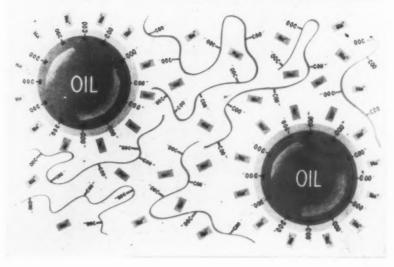
As a general procedure the oil phase is added to a water "solution" of preneutralized "Carbopol 934" containing the solid pigment phase in suspension. In this formulation 0.06% "Carbopol" is effective in providing emulsion stability and suspension of pigments.

Primary Emulsification

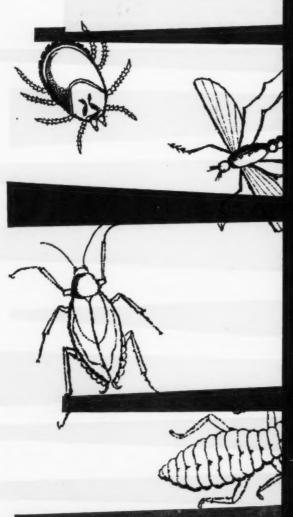
Over-all conclusion derived from application studies of the

Figure 8

POLYMER AS AN EMULSION STABILIZER



^{*}Paper presented Dec. 6, 1960 during 47th annual meeting, Chemical Specialties Manufacturers Assn., Hollywood, Fla.



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acid polymer, or simple alkali salts of the polymer, to the emulsification or stabilization of oil-in-water emulsions must be that limitations of each method predestine something less than the ultimate efficiency and utility expected from a polymeric emulsifier. Whether the cause be an excessively high interfacial tension or loss of yield value due to common ion interference, reduced commercial utility is the end result.

In order to attain the ultimate in polymer emulsification efficiency, the polymer itself must of necessity be the primary emulsifier. It must be modified in such a manner that it will be properly oriented at the oil-water interface and can lower interfacial tension. The "Carbopol" polymer may be considered to be a reactive polymer, in that repeating carboxyl groups on the polymer provide an opportunity for modification to satisfy these requirements. The desired modification is achieved by neutralization of a portion of the carboxyl groups with fatty amines. The lipophilic nature of the long chain alkyl amine provides the necessary orientation of the molecules at the oil/water interface as well as reducing surface and interfacial tension to practical levels for emulsification. Neutralization of some or all of the remaining carboxyl groups is accomplished with a common base such as sodium hydroxide to provide control of pH of the emulsion, and viscosity and yield in the water phase. Figure 9 characterizes the use of the mixed salt of the polymer as the primary emulsifier. Note in particular by contrast to Figure 8 the very low ion density in this system as well as the development of a protective sheath in depth on the individual oil sphere as a result of orientation of the polymer. The net result is exceptional levels of emulsion stability combined with unusual ease of emulsification at low levels of total polymeric emulsifier which provide the ultimate in lack of emulsifier inter-

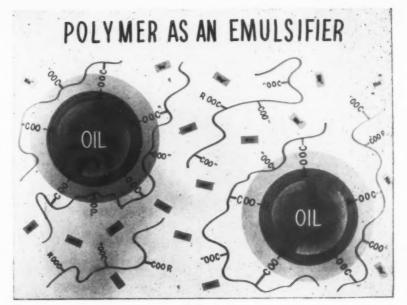


Figure 9

ference in the properties of the finished emulsion.

Of the many "oils" with which we have worked in our laboratory, coal tar was selected to demonstrate the efficiency and utility of this system of emulsification. Choice of this material is based on the extreme cohesiveness of tar and unusual specific gravity (<1.2) which for years has prevented development of stable, high solids emulsions. A typical tar emulsion in commercial use might

be based on 25 per cent tar solids, 25 per cent bentonite, and five per cent anionic emulsifier. Obviously, the deposited film is extremely water sensitive because of so much bentonite and emulsifier.

In preparing a tar emulsion with polymeric emulsification, the "Carbopol" polymer is dispersed in the water phase and neutralized with a fatty amine and sodium hydroxide. Tar is then added slowly with agitation to the water phase at a temperature dependent

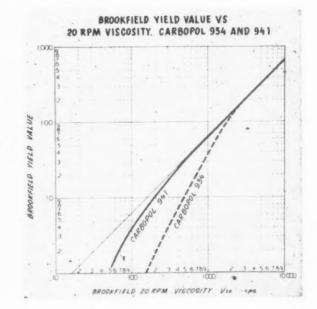


Figure 10

DELIVER DURABLE, SHINE FINISHES WITH RCI 40-431 Synthemul Polyacrylate Emulsion

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RCI40-201 Synthemul Modified Polystyrene Emulsion

The lightest on the market. Produces light color finishes with a high degree of gloss, wearing, water resistance and recoat-

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Contributes outstanding characteristics of leveling and depth of gloss. Additionally, aids in decreasing the temperature of film forming of the floor finish.

Write RCI for samples, formulas, technical literature and formulation assistance to meet the requirements of your market.



'Raggedy Ann' e1961 by The Bobbs-Merrill Company Inc



REICHHOLD
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upon the melting range of the tar. A typical formulation might be:

Material	% of Total
Water	49.125
"Carbopol 934"	0.25
Sodium hydroxide	
(10% solution)	0.5
"Ethomeen C-25*"	0.125
RT-8 Tar	50
	100

*Armour & Co., 1355 W. 31 St., Chicago, Ill.

"Ethomeen C-25" is a polyethylene oxide modified dodecylamine which has some advantage over the use of unmodified amines because of increased water solubility and lower interfacial tension at equivalent usage levels. It has been found that optimum alkyl amine varies depending on the oil being emulsified. This is probably a function of solubility relationships between the alkyl group and the oil.

What are the characteristics of a tar emulsion based on the above formulation? The pH will be 6.1 because of the amount of sodium hydroxide utilized. The apparent Brookfield Viscosity at 20 RPM will be between 55,000 and 60,000 cps. This product will be of non-pourable, mayonnaise consistency, but will easily spread over surfaces as a result of its plastic rheology. Deposited films after drying are unaffected by moisture as a result of low hydrophilic content. The emulsions are dilutable with water and samples have aged for up to two years in our laboratory without evidence of phase separation.

Obviously many applications for stable tar emulsions are based on pourable rather than mayonnaise-type emulsions. Since we have shown that apparent viscosity is unimportant for permanent stability, a stable fluid emulsion depends only on the use of a polymer higher in ratio of yield value to viscosity than "Carbopol 934." Figure 10 demonstrates how in the critical low apparent viscosity range (for pourable systems below 2000 cps.), "Carbopol 941" provides the necessary yield value coincident with lower apparent viscosity. Use of "Carbopol 941"

is also favored by low level of ion sensitivity and ease of dispersion in water. As a result, a typical fluid tar emulsion would be identical to the example of thick emulsion used herein with the exception of a reduction to about 0.125% "Carbopol 941," with proportionate adjustment in "Ethomeen C-25" and sodium hydroxide neutralization. Commercial fluid tar emulsions of 10,000 gallons have been successfully prepared using available field equipment not originally designed for this use. Stability of these emulsions is excellent in every case, in spite of wide variations in droplet size and size distribution.

Summary

The permanent stability of oil-in-water emulsions has been shown to be a complex inter-relationship of dependent factors which tend to result in complicated formulations and the use of excessive quantities of surface active materials.

It is suggested that yield value of the continuous water phase constitutes a simple rheological solution to the problem of stability by providing for permanent suspension of the oil spheres independent of all other destabilizing factors.

"Carbopol" polymers are found to be unique in the field of synthetic and natural polymers in their ability to develop plastic rheological behavior and yield value in water solutions.

Methods for use of these polymers in isolated sphere systems, in stabilization of emulsions based on anionic or nonionic primary emulsifiers, and as primary emulsifiers by modification with alkyl amines have been examined in detail as commercial results of the rheological theory discussed herein.

References

- "Emulsions," W. C. Griffin, Encyclopedia of Chemical Technology, Vol. 5, 1950.
- "The Rheology of Natural and Synthetic Hydrophilic Polymer Solutions As Related to Suspending Ability,"

- R. J. Meyer and L. Cohen, Journal of the Society of Cosmetic Chemists, Vol. X, No. 3, May, 1959.
- "A Method for the Interpretation of Brookfield Viscosities," R. L. Bowles, R. P. Davie, and W. D. Todd, Modern Plastics, November, 1955.
- "Carbopol 934" Brochure plus Supplements #1 and #7, B. F. Goodrich Chemical Co.

New Syndet-Sanitizer

A new liquid detergentsantitizer-deodorizer has just been placed on the market by the Industrial Soap Division of Armour & Go., Chicago. Claimed to be active against both gram-negative and gram-positive micro-organisms, "Armosol" is intended for hospital and institutional use.

Suitable for application by sponge mop, floor machine, spray, or flood to walls, floors and other surfaces, the product is said to be effective at a use concentration of one and one half ounce per one gallon of water. At this recommended dilution, one and one half ounces of "Armosol" will treat approximately 1500 square feet of surface. One gallon of the detergent-sanitizer concentrate makes 85.3 gallons of aqueous solution, enough to clean about 127,950 square feet.

Said to be odorless, readily soluble in both hard and soft water, nonstaining and gentle to the hands, the product may also be used for cleaning and sanitizing refrigerators, stoves and other equipment. It is suitable for the preliminary cleaning of surgical instruments.

Genesco Acquires Firms

Genesco, Inc., Nashville, Tenn., recently acquired Parfum Givenchy, Inc., Parfum Millot, Inc., and Paul D. Blackman Corp., all in New York.

The three companies, and the wholesale cosmetic division of Henri Bendel, Inc., a Genesco division, will be operated as a Genesco subsidiary under the name House of Fragrance, Inc. Paul D. Blackman has been named president of the subsidiary, it was reported.





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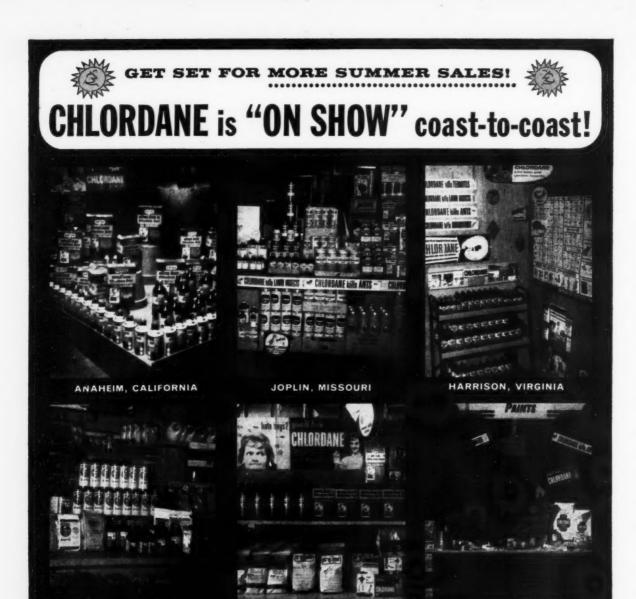
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supply sales is the height of the insect season. Insecticides can be a dealers' best line during this period. And THE insecticide is Chlordane. It's more versatile and effective, more intensely promoted, more widely displayed than any other active ingredient. Go along with your dealers! Profit from the push they're putting behind Chlordane. Alert your organization to Chlordane's big potential for summer sales and profits!



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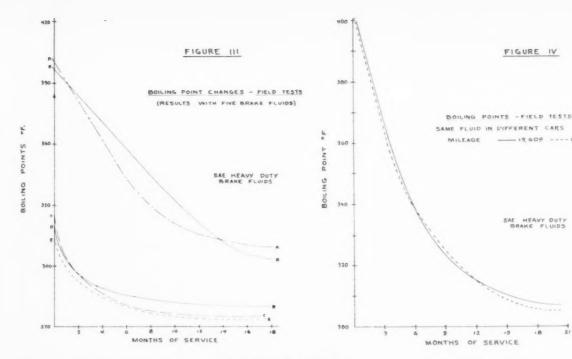
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Brake Maintenance

(From Page 98)

experience, the major portion of absorbed water contaminant occurs within four to six months from start of service life.

A separate plot (Figure IV) shows two test periods using the same fluid in two different cars. While the mileage is significantly different for each car, the curves are almost identical, with amazingly close correlation at similar intervals throughout the extent of the curves. This correlation was noted also in other test cases, where the same fluid was used in different cars.

(To be Continued)

Arol Appoints Weiss

J. J. Weiss has joined Arol Chemical Products Co., Jersey City, N. J., as technical director, it was announced late last month by Gerard A. Palamara, Arol's president.

Mr. Weiss was previously associated with Emkay Chemical Co., Elizabeth, N. J., manufacturer of synthetic detergents and textile chemicals.

Arol makes a full line of chemical specialties for institutional and industrial use. Waxes, cleaning compounds, laboratory detergents, metal cleaners and marine specialties are included, as well as boiler water treatment compounds, soot removers and a wide range of textile chemical specialties.

The firm's facilities, located at 371-81 Wayne Street, Jersey City 2, consist of 30,000 square feet of manufacturing space, 10,000 square feet of warehouse space, and almost an acre of yard space.

-15,009 ----12,543

BRAKE FLUIDS

Ungerer Subsidiary

George Brannigan, vicepresident of Ungerer & Co., New York, recently returned from a trip to London, where he directed the workings of a newly established subsidiary, Ungerer, Ltd.

Blue Mottled Soap

(From Page 65)

fuged for one half minute. The volume of the fatty acid is now read in the stem. The percentage of fatty acid can now be calculated against previous calibration of the bottle by classical methods to allow for the average density of the fatty acid and the expansion of the glass at the working temperature. This does not give an absolutely accurate result but the beauty of it is that a result can be obtained in seven minutes. Results are accu-

Table VI. Boiling Point Change Compared With Percentage of Moisture (Results from Field Tests)

Fluid	Initial (°F) Boiling Pt.	Final (°F) Boiling Pt.	Degrees (°F) Drop	Percentage of Water	Time in Months	Total Mileage
A	365	328	37	1.82	3	4,024
В	400	304	96	2.71	20	12,543
C	408	290	118	3.13	24	6,611
D	384	340	44	1.47	9	4,721
E	322	280	42	3.11	14	2,937
F	316	290	26	1.40	4	4,964
G	330	275	55	3.53	13	11,167
H	316	276	40	2.66	24	8,025
I	402	308	94	2.78	20	15,609





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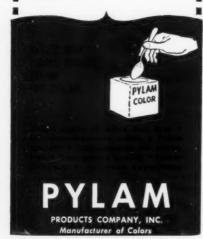
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rate to within one-half percent, which is sufficient for this purpose.

The soap is now boiled gently and kept up to the top of the kettle in such a manner that steam escapes from the 'roses' at the surface of the kettle. The soap is now tested by dipping a trowel into the mass, withdrawing the trowel and turning it sideways. If the soap falls from the trowel in large flakes and sets on the trowel to a shining surface, sufficient water has been added. Now the soap is tested to see whether it will mottle. This is best done by inserting a small piece of sheet glass into the soap, withdrawing it and observing the manner of cooling. If this sets to a thick film with streaks of white and streaks of blue, the soap is right. If, however, it sets to a thin pasty mass of uniform blue on the glass, the soap contains too much water and can only be rectified by adding a small quantity of hot curd soap. If the soap on the glass takes on a grained appearance, too much alkali or too little water has been added. This can best be checked by taking a sample in a bucket and adding a small amount of water or fatty acid to the soap and noting the result. If the soap forms a thick uniform blue mass on the glass there is too little alkali. When the soap is in the right condition for mottling, it can be run out into the frames but the steam coils should not be shut off as the soap should be kept as hot as possible and allowed to cool slowly. Fast cooling gives a very small mottle, whereas slow cooling will produce very attractive streaks of blue and white. For this reason the very best mottle is obtained by cooling in large capacity wooden frames. From our experience, a wooden frame holding three to four tons of soap takes three weeks to cool. However, 1500 pound iron frames also give a very nice mottle if they are stacked close together and the tops and sides are covered with sacking. The soap should mottle on its own quite satisfactorily in the frame, but after an hour or two it is necessary to check the soap in the frame with a piece of sheet glass. If the soap cools on the glass in streaks of blue and white, then the mottle will appear on its own. If, however, the soap is thin in the frame, the mottle can still be saved by hand crutching each frame for a few minutes at a time until the soap thickens.

There is another method for producing a mottled soap with much less effort. However, this method, the cold process, is not as satisfactory as the one described above. This is still in vogue in some places. An ordinary cold process 45% filled white soap is made and then cut into chips. Another batch of cold process filled soap is made and blue coloring matter added. When the reaction is well under way the soap is run into frames two thirds full. The frame is then filled with white soap chips and each frame is crutched by hand for an hour until the white is uniformly mixed.

Recently continuous soap making machinery has come onto the market which can produce a soap with blue and white streaks. This is done by feeding into a plodder two circuits, one of white base soap and the other blue and a streaky effect is produced. This product does not look at all like conventional mottled soap. With a machine such as this the art and skill of soap making is lost and it is necessary only for a father to teach his son how to press a button rather than how to faste soap.

Blue mottled soap does not, of course, have the detergent properties of the higher grade soaps or the modern detergents, but in the more under-developed parts of the world it still has a very great hold. In times of fat shortage it can be used to extend the supply of fats. In South Africa during the last war, the proportion of fatty acids was lowered by legislation to a minimum of 32% and a maximum of 38% fatty acid. This had quite a considerable effect on the supply of fatty material in the time of shortage.

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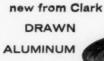
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When you need a functional, applicator-type package, specify a Clark metal container. Through its plastics division, Clark designs and manufactures plastic closures and applicators for metal/plastic combination containers.



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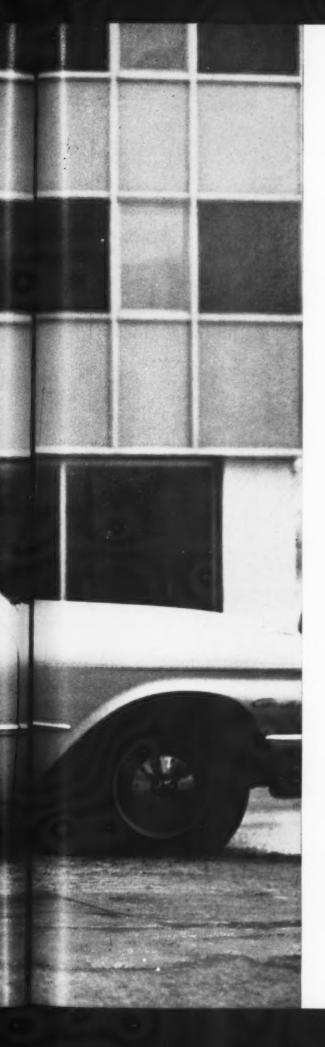
Cans for "New Tone." pressure packaged furniture polish of Simoniz Co., Chicago, have been redesigned. A bi-colored yold and orange replace the original all-white can. Product is packaged in 6½ and 14 ounce sizes. Continental aerosol cans are equipped with "B9-FG" valves and mechanical break actuators by V.C.A., Inc., Bridgeport, Conn.

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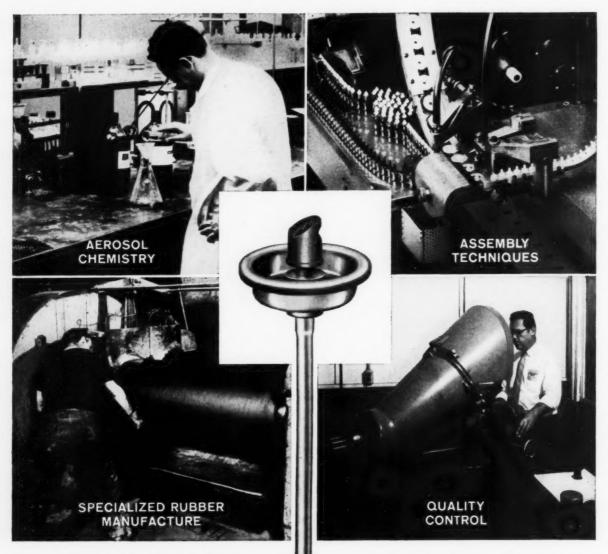


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Your Anchor Man knows glass packaging. He brings you all the benefits of Anchor Hocking's half-century of specialization in glass packaging. And he is supported in depth by experienced research, engineering, quality control and service technicians.

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Every part of this aerosol valve except the dip tube is a Schrader product...and only Schrader's design and production facilities, greatest in the aerosol field, made it possible.

For example: techniques new to the aerosol industry were developed by Schrader to control rubber compounds' hardness, high resistance to compression set, surface smoothness, size uniformity, and service life. Exhaustive research into wire sizes, diameters, pitch and length has provided a superior valve spring with controlled tension. Rigorous new tests and special equipment were devised to control quality of each component. New production methods were used to

. comes Schrader's Superior Aerosol Valve

insure uniformity and precision.

The result is the world's closest approach to a universal aerosol valve. It can handle a wide range of product viscosities with feather-touch actuation and true-aim spray control.

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culmination of 117 years of experience in meeting and solving pressurized air problems. Discuss your aerosol valve needs with Schrader's Aerosol Engineers.

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Highest resistance!

Lowest weight

300 psi

12 oz. container 1.41 ozs. 6 oz. container .89 ozs.

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One-inch opening to fit any standard 1" valve cup.

Perfect decoration: base coating in any color plus lithographic printing in four colors.

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ethylene plastic bottles, with their dripless pouring feature, are being used for a growing number of products. The availability of handles widens the range of products which are marketed best in plastic bottles. And like many other plastic container features, handles are distinctly an Owens-Illinois specialty.

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PRODUCTION VERSATILITY—Ample facilities to handle oil and water base, liquid and foam products, of all

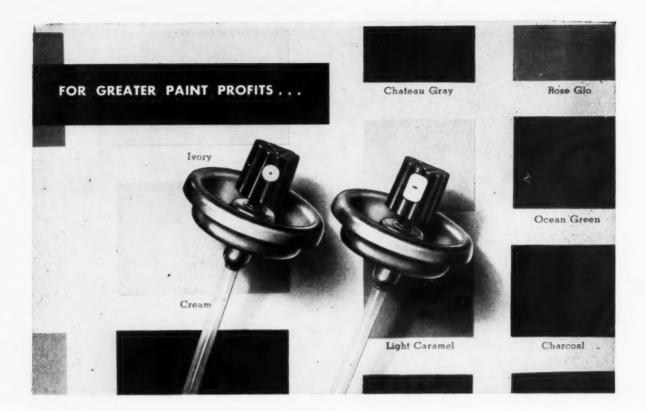
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Scene of 1961 Packaging Show: Chicago's new McCormick Place Lakefront Exposition Hall.

Packaging Show Highlights

HE temptation to resort to the use of superlatives in describing the 1961 Packaging Show and Conference, held at the new McCormick Place exhibit hall in Chicago, in mid-April, is hard to overcome. Everything was so new, so big, so impressive, and seemingly so important.

Statistically, the 30th edition of the National Packaging Exposition must have been a satisfying experience for the show's sponsor, American Management Association. Over 30,000 persons, a new record, were registered for the "main event," held in the recently opened McCormick Place Lakefront Exposition Hall. Show visitors had their selection of 372 booths to look over in the 161,000 square feet hall.

For the person attending the Packaging Show who wanted to hear, as well as see, what was new in packaging, the Packaging Conference was in session for three of the four days of packaging week in Chicago. Keynote speaker of the Packaging Conference, Walter N. Plaut, president of Lehn & Fink Products Corp., New York, discussed the "Power of Packaging" from the management point of view.

"The power of packaging can change entire industries, can create competitive upheavals and is becoming increasingly more important to business management under the current conditions of self-service shopping habits and attitudes," Mr. Plaut declared.

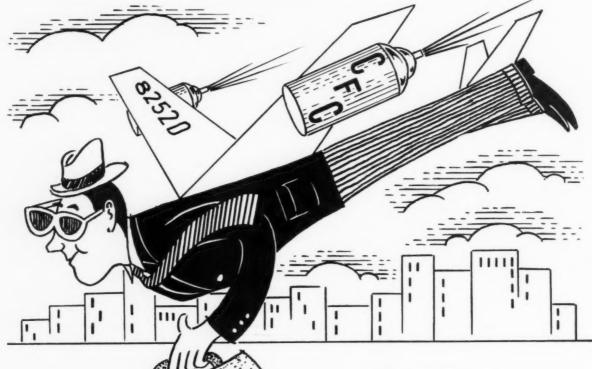
In citing examples of changes wrought by the Power of Packaging, Mr. Plaut mentioned aerosols. "When we think of the businesses that aerosol packaging has changed—shaving creams, hair care, pharmaceuticals, whipped

cream, and many others—we realize that a packaging innovation can change our own businesses overnight."

Mr. Plaut stressed the point that package design "has become an important part of selling, merchandising and marketing. It may well represent the ultimate, final concept in total marketing," Mr. Plaut stated. He added that "the best package today represents a combination of the designer's creative skills and the production, marketing, and sales knowledge of the manufacturer's team.

Mr. Plaut pointed out that innovations in packaging have achieved some fantastic successes as well as costly failures. He stated that he believes packaging must be managed, and managed efficiently; that the relationship of packaging to improved manufacturing facilities and to the total financial I say, there comes one of those flying AEROSOL chaps from

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Walter N. Plaut

position of the corporation must be considered in order fully to utilize its power.

"A business management must protect itself by setting up packaging programs for each of its products that will insure both short-term and long-term leadership. At Lehn & Fink, our manufacturing and financial officers and their staffs play an important part in our packaging planning and there is no major function in the company that is not closely associated with packaging."

His company, Mr. Plaut reported, has become more and more aware of the power that packaging exercises in the sales of its several hundred products, and has developed the organization and the men comprising the organization accordingly. Three new executive positions have been established within the past year at Lehn & Fink Products Corp., which bear on package and product design and development work. Included are the Director of Marketing Development, to dovetail creative packaging activities and long range marketing planning, and Packaging Coordinator to provide liaison between marketing divisions and packaging engineers.

Because new materials and new technologies will outmode today's packaging, it is management's duty to keep abreast of all packaging developments," Mr. Plaut asserted. He pointed out that "the Power of Packaging should be coordinated with and integrated into the total marketing program, because it is a marketing weapon contributing to increased consumer demand, reduced costs, and a better profit position."

New Packaging Needed

The need for new packaging is universal among marketers, according to Gilbert D. Miles, manager of packaging, toilet articles department, Colgate-Palmolive Co., New York. Speaking at the panel on consumer goods packaging, the morning of April 11, Mr. Miles pointed out that "everybody needs new packaging, particularly functional improvements and especially those with established brands who shrink from it most."

According to Mr. Miles, their "fearful, protective attitude with regard to the mythical steady customer may be responsible for further fragmentation of the market by the entry of new products." Terming new products "fine, especially when they represent a truly new service such as frozen fruit juices or aerosol hair spray," the speaker declared "they are not so beneficial to the market as a whole when they merely offer a more functionally modern improvement that could have been adopted by the leaders in the field."

Mr. Miles remarked that his company has "information on some products in the toiletries field that shows as few as 20 per cent of the people now using a brand will be using that same brand in eight months. Such a picture is a far cry from the steady customer we like to dream about. Obviously, this type of rapid brand switching is not characteristic of all product classes or even of all brands in a class . . . The point is that we should be healthily suspicious of accepting any customer as steady. Instead, we might better replace this idea with a model from nuclear physics and think of customers as having a brand loyalty half-life. This is the time in months in which 50 per cent of those now using the brand will be replaced by users from other brands. When

this brand loyalty half-life has been measured for your product then it is a simple matter of arithmetic to figure out what your decision regarding packaging or product innovations should be."

Mr. Miles said he "suspected" many companies were "holding back" for "fear of losing steady customers which they don't really have." He recommended a more "sophisticated" concept of "loyal users" in which the population of customers is "constantly changing." They would then realize that their established brand's position is not as different from the new product's situation as they thought.

"Failure on their part to recognize the dynamics relating to their brand leads to stagnation," Mr. Miles declared. He also explained that the "old brand sits still, afraid to move aggressively. New products enter the market fearlessly bringing innovation into the field and before you can engrave 'steady customer' on Mount Rushmore, the established brand is losing more and spending more to sell less and less at a lower profit."

In conclusion, Mr. Miles stated "if the brand loyalty half-life of your product is low enough, it is better for you to lead in all phases of product and packaging modernization than it is to pave the way toward certain obsolescence by sticking doggedly or fearfully to what you have. What is required to prevent this trend toward obsolescence is to measure, through

Gilbert D. Miles



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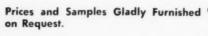
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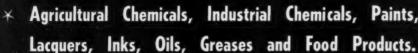
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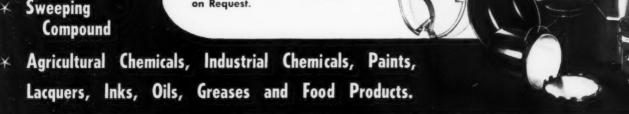
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VULCAN-ASSOCIATED can efficiently supply your PAIL requirements from any one of our 7 plants. Every style and size 1 to 12 gallon - colorfully printed or lithographed - any standard pouring opening

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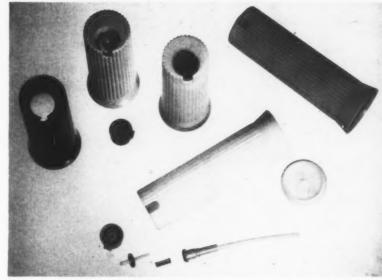


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the application of market research, your brand loyalty half-life. With these data you then can set a course of action with respect to new packaging and product innovations that can prevent the decline of a brand on which millions of dollars have been spent. Surely this can be more profitable than to face the uncertainty of replacement by your own new brand or the losses which you will incur if competition beats you to it."

Packaging innovations for a wide variety of chemical specialties, including aerosols, were unveiled publicly for the first time by manufacturers of containers, closures, packaging machinery, cartons, films, etc. These new ideas ran the gamut of the new aerosol piston package developed by American Can Co.'s Bradley-Sun Division to a novel plastic aerosol container that is filled from the bottom and features a built-in valve. The bottom of the plastic container is sealed by spin welding a disc over the bottom opening. Containers are fabricated from du Pont's "Delrin" plastic.

The "Del-Sol" plastic containers, which are complete packages with a valve preassembled into the container, are a development of V. C. A., Inc., Bridgeport aerosol valve and component producer. William O'Donnell and Steven Beres of V. C. A. demonstrated the spin welding technique for filling



"Del-Soi" container, shown in multi-view photo, were spun welded at the du Pont booth at Packaging Show. Du Pont's "Delrin" plastic is used to fabricate these units. Employing modified drill press as part of standard conveyor filling line, technicians of du Pont Co.'s polychemicals department demonstrated how these bottom filled aerosols can be sealed by rotating the disc (lower right) against the container base under pressure. Aerosol has molded-in valve of metered or unmetered style.

"Del-Sol" containers at the du Pont booth at the show. They explained that the spin welding process was the turning of one plastic part, in this case the bottom disc, at high speed, against a stationary part, the actual container, until the interface melts and a weld occurs.

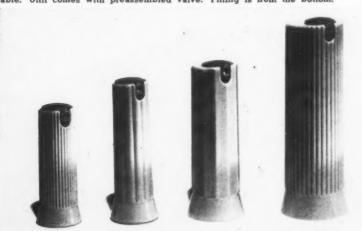
The V. C. A. pilot "Del-Sol" filling line, which is not sold by V. C. A., but which was available for demonstration purposes, had pucks which were adaptable for different size "Del-Sols" by the use of sleeves. The usual filling bowls,

which are seen on a conventional cold filling aerosol line, were also present. However, where a normal spinning or crimping apparatus would be, was a drill press with a special spin welding adapter. By utilizing the same timing equipment that is used on a conventional filling line, the "Del-Sol" line was able to produce 40 units per minute.

Products, which Mr. O"Donnell, chief engineer of V.C.A., foresees might adopt these "Del-Sol" containers, include cosmetics, sprays, cleaners, perfumes, powders, etc. Advantages cited for the new package include: easy adaptability of most aerosol lines to filling "Del-Sols"; no spinning or crimping of valve necessary; no overcap needed; containers can be lithographed, screened or hot stamped. In addition, these packages come in a wide range of colors; they are available with metered and non-metered sprays, and with mechanical and non- mechanical break actuators; can be injection molded to many shapes, and are corrosion resistant.

> Containers for aerosol pro-(Turn to Page 167)

Styles and sizes in which V.C.A's "Del-Sol" plastic aerosol containers are available. Unit comes with preassembled valve. Filling is from the bottom.





only mother nature does a better packaging job

This is perhaps the ultimate in fine packaging. Attractive, functional, efficient. Even a zipper couldn't improve it! We readily admit that even with the advanced packaging techniques, modern equipment and time-tested skill we have at G. Barr & Company, Mother Nature—in her field—does a superior packaging job.

But AEROSOLS! That's a different matter! Private label aerosol manufacturing has been our field for over ten years. And if the 'hundreds of millions of perfectly formulated and filled packages we've made for marketers of famous brand name products doesn't convince you that we are tops in this specialized field, we're ready to prove it with a test run of a few thousand packages of your product. In other words: If Mother Nature doesn't do YOUR packaging, call on us!

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ACRES OF AEROSOL PACKAGING FACILITIES

packaging notes

Anchor Hocking Officers

John L. Gushman, formerly vice-president of Owens-Illinois Glass Co., Toledo, O., and presi-



John L. Gushman

dent of Owens-International, was elected president, chief operating officer, and a director of Anchor Hocking Glass Corp., Lancaster, O., at a recent meeting of the board

William V. Fisher, president of the company for the past 17 years, was named chairman of the board and chief executive officer of the corporation.

I. J. Collins, chairman of the board since 1944, was elected chairman of the executive and finance committees. Mr. Collins was the founder of Hocking Glass Co.,

William V. Fisher



the predecessor of Anchor Hocking, in 1904.

Mr. Gushman joined the legal department of Owens-Illinois in 1947. In 1953 he was made a vice-president of the administration division. He was named vice-president of Owens-Illinois and president of O-I International in 1956.

Mr. Fisher joined the Hocking Glass Co., in 1919, and was named superintendent in 1920, and a director, vice-president and general manager in 1928. In 1937 he became a director, vice-president and general manager of Anchor Hocking Glass Corp., and was elected president in 1944.

Charles Stephens Dies

Charles S. Stephens, 57, product manager of the non-food container department of Conco division of American Can Co., New York, died April 24, of a heart attack, suffered at his home in Chappaqua, N. Y. Mr. Stephens had been with the company for 38 years.

He was active in the Chemical Specialties Manufacturers Association, New York, serving as a member of the Aerosol Publicity and Marketing Committee, and as a member of the Golf Committee.

He is survived by his wife Elsia, and a son, Thomas.

Glass Container Peak

Domestic shipments of glass containers in 1960 established an all-time high, it was reported recently by R. L. Cheney, executive director of the Glass Container Manufacturers Institute, New York.

According to the institute's figures, shipments by GCMI's 36 members, representing over 90 per cent of the industry, totaled 20.3 billion units in 1960, an increase of two and a half per cent over the 19.7 billion units shipped in 1959.

Vulcan Elects Ryan

Leo T. Ryan was recently elected vice-president in charge of sales for Vulcan Steel Container



Leo T. Ryar

Co., Birmingham, Ala. He has been general sales manager since 1958, and will be headquartered in Birmingham.

Colton Names McDonald

Lawrence A. McDonald was recently appointed general sales. manager of Arthur Colton Co., Detroit. Mr. McDonald was formerly vice-president and general manager of Super Tool Co., which he joined in 1957. Prior to that he was engaged in process and sales engineering for 10 years.

Lawrence A. McDonald .





Continental's improved aerosol can REALLY takes pressure — more than any other 3-piece can being manufactured. The can's unique pressure tab side seam, together with Continental's improved solder method, form the greatest bond stability available.

That's not all—the new can provides greater protection over longer periods...holds higher pressures at elevated storage temperatures...increases the range of propellent mixtures useable in containers...paves the way for expansion in the entire aerosol industry.

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New Peerless Directors

Peerless Tube Co., Bloomfield, N. J., recently elected William G. Remington, administrative



William G. Remington

assistant to the president, a member of the company's board of directors. Mr. Remington was previously a sales executive with the firm.

Also elected to the board was Willard W. Brown, vice-president of Winslow, Cohu & Stetson, New York investment firm.

O-I Builds Two Plants

Owens-Illinois Glass Co., Toledo, O., recently announced construction of two new facilities for the production of blow molded containers. The new plants, to be located in St. Louis, Mo., and San Jose, Calif., will bring the total number of O-I blow-molding facilities to 10. Operations are expected to start by mid-year.

Continental Can Co., New York, also announced the addition of two new blow molding facilities, at Cleveland, O. and Houston, Tex.

Grace Plastics Brochure

Techniques for the printing and decorating of polyethylene is the subject of a new, 16 page brochure by polymer chemicals division of W. R. Grace & Co., Clifton, N. J. Titled "Printing and Decorating of Polyethylene," the booklet is a comprehensive summary from a plastic raw materials supplier.

Illustrated with schematic diagrams, the brochure covers variations in decorating techniques for both treated and untreated, low and high density polyethylenes. Of special interest is the appendix which lists some 250 sources for the services, equipment and supplies described in the brochure.

New Nesting Pail Data

Complete information, including specification sheet and brochure, are now available on the newly designed taper-sided steel nesting pail from Bennett Industries, Inc., Peotone, Ill.

"Nesting pail" describes the leakproof, five-gallon steel pail which is shipped and stored nested, allowing three times as many pails to occupy the same space as straight sided pails, the company claims. They may be lithographed or painted and are available in 28, 26 and 24 gauge.

Crown Cork Names Winters

W. Howard Winters has been appointed midwestern regional manager of Crown Cork & Seal Co., Philadelphia, it was announced recently. He is responsible for the sale of Crown's line of cans, closures and packaging equipment in the states of Michigan, Indiana, Ohio, Kentucky, North Dakota, Nebraska, Minnesota, Iowa, Wisconsin and Illinois. Mr. Winters will be headquartered at the company's new sales offices, 5235 West 65th St., Chicago.

W. Howard Winters



Brockway Appoints Hewitt

Donald B. Hewitt has been appointed promotion and advertising manager of Brockway Glass



Donald B. Hewitt

Co., Brockway, Pa., it was announced recently. Mr. Hewitt had formerly headed his own advertising agency since 1954.

Roth-Pak Has Dosamatic

Roth-Pak, Inc., New York, has added the products of Dosamatic Dropper Corp., Valley Stream, L. I., to its molded closure and fitment service.

Deliveries of the polyethylene "Dosamatic" dispenser, which has three moving parts and can be set for two or more exact doses without refilling, are scheduled for mid-1961.

New Enjay Color System

"Color-Pak," a color-matched concentrate system for "Escon" polypropylene, has been announced by Enjay Chemical Co., a division of Humble Oil & Refining Co., New York. The "Color-Pak" system is designed for use by plastic custom color matches at a minimum cost. In addition, the new coloring method is said to eliminate dusting during mixing. The master batch color concentrates are blended with natural "Escon" before use in the ratio of 1:10. Most present "Escon" grades are adaptable to the system, the company reports.



when you make your next packaging decision, we'd like to be on hand showing you how readily liquids dispensed by the new captive cap closures are used, used up, and bought again







Among the first to switch to high density polyethylene plastic bottles for packaging their brands of household bleach were Colonial Stores, Inc., Atlanta, for its "3D," and Roman Cleanser Co., Detroit, for its "Roman Cleanser" bleach. Shown are the gallon size polyethylene bottle of Hercules "Hi-Fax" for "3D," and the half-gallon Roman Cleanser bottle of the same material. Suppliers of blow molded bottles include Plax Corp., Hartford, Conn., and Owens-Illinois Glass Co., Toledo.

"Spix," a high concentration, nonflammable, "non-toxic" insecticide, specifically designed for use in restaurants, industrial cafeterias and food processing areas, was introduced last month. by C. B. Dolge Co., Westport, Conn. Equipped with an aerosol valve by Precision Valve Corp., Yonkers, N. Y., the product is filled by Aero-Chem Laboratories, Inc., Bridgeport, Conn., and is only distributed industrially.

WHAT'S NEW?

Aerosol Cosmetic Enterprises, Stratford, Conn., recently introduced "Thagara" aerosol spray talcum powder, with hexachlorophene. Filled in a six ounce, Crown Can Co. "Spratainer," the pressure package is equipped with non-clogging, "B9-P-FG" powder valve and actuator by V. C. A., Inc., Bridgeport, Conn.

Armstrong Cork Co., Lancaster, Pa., recently introduced a

complete line of floor maintenance products specifically designed for use in commercial and institutional areas. The new line includes a heavy duty commercial wax, a polymeric floor finish and a concentrated cleaner that can be used both as a cleaning agent and a wax stripper; all available in gallon, cans. The Armstrong line will be sold through sanitary supply distributors.



















"just 22." a new antiseptic emulsion all-purpose cleaner, recently introduced by Associated Just Distributora, Inc., Baltimore, Md., is said to clean floors, walls and other surfaces eliminate odors, act as a bacteriostat, amitize surfaces and inhibit the growth of a wide variety of fungir all in one application. Product contains "G-11" brand hexachlorophone and smellients for hand protection. "FX 175," in the formulation acts to inhibit growth of germe on floors and other surfaces. Available in five gallen pails.

Lowis Research Laboratories, Englewood, N. J., has announced the introduction of three products, "Stain-Aid." 'Drain-Aid and "Septi-Kleen." "Stain-Aid" is a special compound said to remove coffee and tea stains from "Molamine" dinnerware and stains from coffee makers. "Drain-Aid." an institutional product now available to household consumers, has an enzyme-bacteria action for opening clogged drains or traps. Non-toxic "Septi-Kleen," also being made available to small package consumers, is designed for opening clogged drain fields, septic tanks, cesspools, traps and pipelines without pumping, digging or cleaning.

"Instant Torch." a foam-gel charcoal lighter in an aerosol can has been introduced by O-Codar, division of American-Mariette Co., Chicago. "Instant Torch" makes fires burn hotter, cleaner, and length the makes claims. A safety feature of the produced is the fact it won't flash back, liquify or leak. Odor free and tasteless, the lighter doesn't interiers with flavor of grilled foods. O-Cedar claims. Retail price is 58 cents for a 15-ounce can.

"DS Cleaner," a cleaner and sanitizer for milking equipment and dairy utensils, packaged in a paper bag, recently was introduced by Yale Chemical Co., Nashville, Tenn. The bag, developed by Arkell and Smiths, Hudson Falls, N. Y., has a polyethylene liner said to be moisture and sift proof. Bag features a scaled vertical seam and a flat, heat scaled bottom that permits stacking.

"Rust Killer." a new chemical solution recently introduced by Martin-Senour Co., Chicago, is said to remove effectively rus and exidation from metal surfaces. The easy-to-use (wipe on scrub with steel wool, rinse off) metal cleaner is packaged in a 16 cunce plastic bottle, and retails for \$1.49.

United Co-Operatives. Inc., Montgomery, Ala., is now distributing its "Unico" line of snail and slug pellets and lawn granule insecticides in sift-proof corrugated boxes equipped with pouring spouts. The nine inch by six inch by 12½ inch boxes are supplied by the corrugated container division of Continental Can Co., New York. The outer liner of bleached white supplied has a three color label applied.











A packaging switch—from glass to plastic bottles—for its "Huntington Liquid Bowl Cleaner" was announced recently by Huntington Laboratories, Inc., Huntington, Ind. Product now packaged in one-quart plastic containers, has also been reformulated to increase cleaning power. Other product changes include a new "fresh" odor, and a "lively" yellow-pink color.

New label design was adopted last month for one gallon, five gallon and 30 gallon pails of recently introduced "Dolanite" polymer gel floor cleaner and polish, a product of Dolan Maintenance Products Co., New York. At the same time the company announced an aluminum composition pad for the "Dolanite" system of floor maintenance. The pad is marketed under the tradename "Drypad."

Aerosol Coametic Enterprises of Stratford, Conn., recently introduced new "Spray Bath" cleaner for eye glasses. Product is packaged in 18 c.c. aluminum container, mist top actuator and "318F" mejered valve, all by V.C.A., Inc., Bridgeport, Conn.

Manufacture of a tamper-proof, plastic seal for aerosol products was announced late last month by PharmaPlastics, Inc., 205 S. Smallwood St., Baltimore 23, Md. Commercial quantities of the new design in transparent styrene and polyethylene plastic are now available. Caps may be used with any standard one

inch valve cup, and are high enough to clear most valve actuators. New closure may be used in conjunction with most commercially available overcaps. Closure may be easily torn off for use of product, but after removal the seal cannot be repositioned. Open vents along lower edge of cap permit drying of valve cup after passing through water bath in the filling line.

"Speedry" no odor marker, with self-contained ink supply in eight colors for home and office use, is now appearing in new, colorful package with acetate bubble. RC Plastics Co., Brocklyn, makes the package for Speedry Products, Inc., Richmond Hill, N. Y., using acetate to form the blister pack. Joseph Davis Plastics Co., Keamy, N. J., suppliers of the acetate, produce it in extruded sheets, rolls, and film in all gauges for vacuum forming and flat applications—transparent, translucent, or opaque.

To emphasize its once-a-year sale of "Lanolin Creme Shampoo," Helene Curtis, Chicago, has had the caps of the 10 ounce, opal glass jars decorated with a red band. Band is imprinted with the legend: "Sale \$1.39—save 50 cents." Display featuring cut-case, is three tier unit, backed up by a striking pink stacking card boidly preclaiming the 50¢ annual reduction. Each tier in display contains one dozen jars of "Lanolin Creme Shampoo."





Pharmaceutical protection begins with these pure bottle

No other material matches Brockway amber glass in protecting valuable pharmaceuticals. And no of material emphasizes quality pharmaceuticals as well as glass . . . BROCKWAY VISION IN GLASE Eye-catching glass flatters products it protects . . . prods fussy shoppers, makes them satisfied custom who look for pharmaceuticals in glass containers. (Just ask the pharmacy that stocks vitamins, or the mod who buys them.) Glass is the traditional protective container, the traditional sales producer.



SUBSIDIARIES: Demuth Glass Works, Inc., Parkersburg, W. VA. Tygart Valley Glass Co., Washington, Pa Celluplastics Inc., Newark, N. J.



OttleBrockway, first name in containers for:

no ot

custom



ewack, M.1 Integrity in glass since 1907

Protective Lining Moves

Protective Lining Corp., manufacturer of plastic liners for drums, cans, pails and cartons, formerly located at 22 Woodhull St., Brooklyn, has moved to 601-39th St., Brooklyn, it was announced recently. The new phone number is Llster 4-3838.

Acquires Cellu-Craft

Rapid-American Corp., New York, recently announced agreement in principle for the purchase of all outstanding stock of Cellu-Craft Products Corp., New Hyde Park, N. Y., independent converter, designer and printer of flexible packaging materials. Cellu-Craft, with sales in excess of \$10 million, was organized in 1937 and is today one of the leading independent manufacturers of flexible packaging materials designed and printed in cellophane, polyethylene, acetate, glassine, paper and

New Visual Impact Machine

"Visiometric Comparator," an electronic machine that measures the visual impact of a package or advertising layout, has been introduced by the R. E. Van Rosen division of the Technopak Corp.,

As the electronically controlled lighting on the test material changes, the visibility of trademark, design and other features can be recorded for comparison with other packages or layouts for design effectiveness. The equipment can be used in comparing any product with that of a competitor. It is also of value in the development of a package, making obvious to the viewer the legibility and attractiveness, under all variations of lighting conditions such as that normal in supermarket illumination.

The machine also incorporates a tachistoscope, a unit measuring what is seen in a flash view of an object. It measures the ease and speed of recognition of design elements within the range of 50 milliseconds to 10 seconds. The

units will be leased by the manufacturer to users, together with test procedure manuals. Packaging firms, advertising agencies, designers, industrial firms and government agencies are among the potential users of the "Visiometric Comparator."

GCMI Spring Meeting

The annual membership meeting of the Glass Container Manufacturers Institute, Inc., New York, will be held at The Greenbrier Hotel, White Sulphur Springs, W. Va., May 23-May 25.

Porter Ball Manager

Recently appointed Pittsburgh district manager for the commercial container division of Ball Brothers Co., Muncie, Ind., is Edwin Porter. Mr. Porter was previously assigned to the firm's general office in Muncie.

Prior to joining Ball, Mr. Porter was active for twenty-five years in glass container sales in various midwestern locations.

Heguy PCA Sales Manager

Packaging Corp. of America, Los Angeles, specialized contract manufacturer and packager of drug, cosmetic and chemical specialties, has appointed Peter L. Heguy sales manager, it was announced recently.

Mr. Heguy was formerly west coast manager for New Jersey Machine Corp., Hoboken, N. J.

Peter L. Heguy



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serving your container needs

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ALL STYLES-ALL SIZES-ONE THRU FIFTEEN GALLONS

ALL TYPES OF PROTECTIVE INTERIOR LININGS

POURING EQUIPMENT

YOUR DESIGN LITHOGRAPHED IN OUR OWN PLANT

TIN CANS

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Packaging Show

(From Page 155)

ducts were a prominent feature of the booth of Crown Can Co. Here, in addition to a magician, billed under the banner of "The Magic of Crown," seven different sizes of seamless and fabricated aerosol containers were displayed. Crown took the opportunity to remind show goers that it is the only supplier of both types of containers. Aerosols were featured in another panel of Crown's 40-foot display, which showed the increase in the market for certain products in pressurized containers.

A new plastic for blowmolded bottles of liquid bleach and other household chemical specialties was announced by Union Carbide Plastic Co. "Bakelite DMDA-5140," a new low-cost, high density polyethylene compound, is now commercially available for the manufacture of blow-molded bottles, Carbide announced. In a section of the Carbide booth devoted to rigid containers, impact strength of an unusual class of polystyrenes was demonstrated. Each part of the seven-section Carbide exhibit displayed a variety of the newest applications of plastics in modern packaging. Special attention was given to skin packaging, automatic polyethylene overwrapping, polyethylene bags, polyethylene-coated products, rigid containers, plastic bottles, and closures.

A new bottle labeling adhesive was introduced at the show by National Starch & Chemical Corp. Completely transparent, the new adhesive, tradenamed "Clearchem," is said to eliminate unsightly gobs and smears which result from adhesive squeeze-out or slip. The new adhesive is "iceproof" and water-resistant, according to its maker, and in addition spreads evenly to a thin film at high machine speeds and grips a wide range of label stocks.

A new vinyl-casein adhesive for foil laminations was also introduced by National Starch and Chemical Corp. Tradenamed "Resyn 33-8012," the new adhesive is claimed to be effective in bonding foil to a wide variety of paper and board stocks and weights.

National Starch also announced publication of a guide to pressure sensitive adhesives—types, property specifications, applications. The nine-page bulletin describes various kinds of pressure sensitive tapes and lables.

A new form-fill-seal machine, called "Stokeswrap 1000" was demonstrated by Food Machinery and Chemical Corp. Two different types of film can be run through the new unit simultaneously, to form different size packages for difffferent products. Two different feeds, with two types of sealing methods and two speeds, are also feasible. Either pillow or four-seal packages are directly formed from roll stock of any type of heat-sealable film, paper foil or laminate, with either impulse or conventional sealing.

Emhart Manufacturing Co. featured its new Standard-Knapp "Glu-Liner" case gluer, as well as its "Formatic 163" pressure former to make round, transparent containers of Plax "Polyflex" oriented polystyrene. Lids were heat sealed by "Formatic 164" heat sealer. Also shown at the Emhart booth were "Type 380-385" unscrambler and up-ender for orienting plastic bottles and aligning them in single line in upright position for delivery to fillers and other operations.

General Chemical Division of Allied Chemical Corp., on behalf of its "Genetron" aerosol propellants, gave over much of its booth to an aerosol information center. Literature and data on aerosols was available at the booth.

New packages for chemical specialties, including those of high density polyethylene and glass were shown at the booth of Owen-Illinois Glass Co. There, too, one found plastic-coated glass aerosol containers and spray-coated glass containers.

Production line attachments for automatic coding and imprinting of cans, jars, bottles, shelf cartons, boxes, shipping cases, bags, wraps, pouches, etc. were displayed by Adolph Gottscho, Inc. The new, "251 Rolacoder," a air-operated side and rear-end case cooler was also shown.

Two New Kartridge Aerosol Fillers at Show

KARTRIDGE Pak Co., Mount Prospect, Ill., introduced two new rotary filling units at the American Management Association's National Packaging Exposition held April 10-13, in Chicago.

The "KP-1800" under-cap aerosol propellant filler, is said to be the first aerosol pressure filler to put the propellant into the can, "under the cap," before the valve is crimped into place. This method is claimed to offer greater speed, especially when large volumes of propellant are required. In this method both filling and crimping are done on the same head. The head forms a pressure seal against the crown of the can, and injects the desired amount of propellant under the valve before crimping. This is done under normal propellant pressures at room temperature. Speeds of up to 120, 6-ounce cans per minute are said to be possible with a six-head rotary filler.

The second new rotary filler, the "KP-1900" coaxial product filler, is said to be suitable for any viscous product, including aerosols. In place of a piston to push the product into the can, the coaxial filler uses a metering piston that is itself pushed upward by the product as the can is being filled. The piston then drops by gravity on the return cycle. A diaphragm opens and closes the ends of two coaxial cylinders at the proper time to make certain the piston can move freely. The amount of fill can be controlled by adjusting the traveling distance of the pis-



IMCO CONTAINER HELPS WIN NEW CUSTOMER FOR TREND!!

IMCO containers (like this bottle for liquid Trend*) win thousands of customers, for hundreds of packagers, every day of the world. Their arresting colors and imaginative shapes win the battle for attention on the retailers' shelves. Their utility and durability win repeat sales after they've been combat-tested in the home.

It's quite possible that a whole new marketing world awaits the introduction of your product in an IMCO container. New developments in the chemistry of polyethylene and polypropylene have vastly increased their capacity to hold products like household products, creams and perfumed cosmetics. At the same time, costs have been driven down until they are directly competitive with glass and tin.

We'll be happy to help you run tests on IMCO containers, and we can quote prices on stock or custom-made bottles and jars. Call the sales office or plant nearest you or write direct to our Sales Manager in Kansas City. We'll have a man contact you within 24 hours.

*A PRODUCT OF PUREX CORPORATION, LTD.



CONTAINER

75th and Cleveland Kansas City, Missouri A Division of Rexall Drug and Chemical Company

Sales Offices
New York, N. Y.
Kansas City, Mo.
Park Ridge, Itt.
Los Angeles, Calif.
Cooksville, Ont., Can
Montreal, Que., Can.

Mfg. Plants
Belvidere, N. J.
Cooksville, Ont., Can.
Kansas City, Mo.
Excelsior Springs, Mo.
Barrisonburg, Va.
Goleta, Calif.
Jeffersonville, Ind.

IMCO CONTAINS THE BEST

new trade marks

THE following trade marks were published in recent issues of the Official Gazette of the U. S. Patent Office in compliance with section 12 (a) of the Trade Mark Act of 1916. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of \$25 must accompany each notice of opposition.

Hunt — This for general purpose cleaning compound. Filed Aug. 3, 1960 by Gerson Stewart Corp., Cleveland. Claims use since September 1954.

Easy-Off — This for glass, porcelain, and chrome cleaner. Filed Aug. 22, 1960 by American Home Products Corp., New York. Claims use since Oct. 28, 1958.

Purex — This for detergents. Filed Sept. 7, 1960 by Purex Corp., Ltd., South Gate, Calif. Claims use since July 1, 1960.

Scrub-a-matic — This for liquid detergent. Filed Sept. 12, 1960 by Gerson Stewart Corp., Cleveland. Claims use since Sept. 2, 1960.

Bon Voyage — This for soap. Filed Sept. 12, 1960 by Les Parfums de Dana, Ir.c., New York. Claims use since March 15, 1960.

Diverstrip — This for paint remover. Filed Sept. 19, 1960 by Diversey Corp., Chicago. Claims use since March 25, 1959.

Master — This for car shampoo, white side-wall tire cleaner and chamois cleaner. Filed Sept. 19, 1960 by Fightmaster Chemical Co., Oklahoma City, Okla. Claims use since Aug. 27, 1960.

Durax — This for liquid wax for cleaning, polishing and protecting finished surfaces of automobiles, furniture, and the like. Filed July 13, 1960 by S. C. Johnson & Son, Inc., Racine, Wis. Claims use since Feb. 11. 1950.

Acry-Mel — This for polish and cleaner for automotive finishes. Filed Nov. 2, 1960 by General Motors Corp., Detroit, Mich. Claims use since Oct. 7, 1960.

Oct. 7, 1960.

Perma/Sterile — This for germicide for household and/or industrial use. Filed March 14, 1960 by Permasterile Corp., Chicago. Claims use since June 1959.

Cyani-Kil Bomb — This for poison gas rodenticide. Filed April 5, 1960 by Long Manufacturing Co., San Leandro, Calif. Claims use since March 1948.

Fyne Suds — This for liquid detergent. Filed March 19, 1959 by Food Fair Stores, Inc., Philadelphia. Claims use since Aug. 10, 1956.

Big Boss — This for wax remover and high potency cleaner. Filed Aug. 30, 1960 by Purex Corp., Ltd., South Gate, Calif. Claims use since April 25, 1960.

NuZip — This for chemical preparation used for the removal of gum, varnish, and sludge deposits in internal combustion engine cylinders and associated parts. Filed Sept. 30, 1960 by South Penn Oil Co., Oil City, Pa. Claims use since June 1, 1939.

Stock-Glaze — This for clearing and polishing compound for wood surfaces. Filed April 28, 1960 by Burnishine Products Co., Skokie, Ill. Claims use since March 29, 1955.

Spic and Span — This for polishing and protective compositions for hard surfaces. Filed Sept. 21, 1900 by Procter & Gamble Co., Cincinnati. Claims use since Aug. 5, 1960.

Island Spice Mist — This for room freshener. Filed June 2, 1959 by Gold Seal Co., Bismarck, N. Dak. Claims use since May 25, 1959.

Glisade — This for treatment material sold in pressurized containers for spraying upon fabrics to facilitate ironing. Filed Sept. 19, 1960 by Acrosol Corp. of America, Wellesley Hills, Mass. Claims use since Sept. 2, 1960.

Gon!— This for chemical degreaser and cleanser for use on automotive parts and engines, appliances and garage floors. Filed Dec. 23, 1959 by Milne Bros., Pasadena, Calif. Claims use since Jan. 8, 1959.

Re-Vita — This for hair shampoo. Filed Aug. 18, 1960 by George H. Weyer, Inc., Kansas City, Mo. Claims use since 1942.

Pristeen — This for germicidal powder for cleaning brushes, combs, curl clips, hair pins and the like. Filed Aug. 29, 1960 by Townsend Products Corp., Mendham, N. J. Claims use since May 27, 1960.

Rantier — This for alkaline cleaning composition. Filed Sept. 21, 1960 by Wyandotte Chemicals Corp., Wyandotte, Mich. Claims use since Feb. 3, 1953.

ReddyGo — This for lipstick remover for use by professional drycleaners. Filed Aug. 23, 1960 by A. L. Wilson Chemical Co., Kearry, N. J. Claims use since July 7, 1960.

MacDermid — This for metal cleaners. Filed Sept. 30, 1960 by Mac-Dermid, Inc., Waterbury, Conn. Claims use since Aug. 1, 1957.

Dermid, Inc., Waterbury, Conn. Claims use since Aug. 1, 1957.

Thermo-fax — This for liquid for cleaning copying machines. Filed Oct. 10, 1960 by Minnesota Mining and Marufacturing Co., St. Paul, Minn, Claims use since Dec., 11, 1959.

Steeluster — This for metal polish. Filed July 5, 1960 by E-Z-Est Products Co., Oakland, Calif. Claims use since June 8, 1949.

Shetland — This for liquid floor wax and paste wax impregnated pads, Filed Aug. 22, 1960 by Shetland Co., Salem, Mass. Claims use since

Spotlight — This for floor wax. Filed Aug. 30, 1960 by Purex Corp., Ltd., South Gate, Calif. Claims use since April 25, 1960.

Banvel — This for herbicides. Filed Aug. 16, 1960 by Velsicol Chemical Corp., Chicago. Claims use since July 5, 1960.

Dogonex — This for animal repellent, Filed Aug. 18, 1960 by Hydroponic Chemical Co., Copley, O. Claims use since July 20, 1960.

Sunshower — This for cream shampoos. Filed Feb. 6, 1959 by John H. Breck, Inc., Springfield, Mass. Claims use since Jan. 20, 1959. Genteel — This for liquid soap

Genteel — This for liquid soap preparation for baby bath and shampoo. Filed Dec. 7, 1959 by Mennen Co., Morris Township, N. J. Claims use since Oct. 5, 1959.

Prestone — This for refrigerants for automotive air conditioners. Filed Aug. 19, 1960 by Union Carbide Corp., New York. Claims use since Aug. 3, 1960.

Choice — This for soap. Filed March 7, 1969 by Colgate-Palmolive Co., New York, Claims use since Feb. 26, 1960.

Great — This for powdered household detergent. Filed June 20, 1960 by Lestoil Products, Inc., Holyoke, Mass. Claims use since June 8, 1960.

Amway — This for cleansers and cleaning compounds, specifically, abrasive and polishing cleaners. Filed Feb. 11, 1960 by Amway Sales Corp., Grand Rapids, Mich. Claims use since Nov. 16, 1959.

Off'n On — This for floor wax. Filed Aug. 1, 1960 by De Mert & Dougherty, Inc., Chicago. Claims use since May 27, 1960.

Spectracide — This for insecticide. Filed June 21, 1960 by Geigy Chemical Corp., Ardsley, N. Y. Claims use since June 3, 1960.

Herkol — This for insecticide. Filed July 27, 1960 by Norda Essential Oil & Chemical Co., New York, Claims use since April 7, 1958.

Tweet — This for lice powder for birds, Filed July 8, 1960 by Sterling Drug, Inc. New York, Claims use since Dec. 30, 1957.

Catonex — This for animal repellent, Filed Aug. 18, 1960 by Hydroponic Chemical Co., Copley, O. Claims use since July 21, 1960.

NEW FROM FULD!

NOW YOU CAN ENJOY THE PROFIT-PACKED BENEFITS OF PRESSURIZED-PACKAGED PRODUCTS—THANKS TO FULD BROTHERS' QUALITY-CONTROLLED

AEROSOL CUSTOM FILLING SERVICE!

SMALL LOT RUNS OUR SPECIALTY

Now, even if you are a *limited market* distributor, you can send your sales curve "straight up" with Fuld's aerosol custom packaging service. We handle oil and water bases, liquid and foam products of all types... insecticides, air fresheners, polishes, bug killers, spot cleaners, deodorants, bactericides, etc. for household, institutional, and industrial use.

Take advantage of our extensive facilities for product development, merchandising research, custom packaging and quality control.

COMPLETE SERVICE FACILITIES

PRODUCT DEVELOPMENT

We will custom blend to your formula specifications or, package our own tested and proved products under your label—or, assist you in developing new products!

MERCHANDISING RESEARCH

A recognized leader in aerosol packaged sanitation products, Fuld offers valuable merchandising assistance gained from its experience and continuing research.

. QUALITY CONTROL

Fuld guarantees rigid quality control on all production, regardless of the size of the run . . . the same consistent quality control that has been our policy for over 30 years.

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A complete selection of smart new containers with built-in sales appeal. And all, with your private brand name prominently displayed! All service confidential.

Your choice of Simulated Lithography or Paper Labels WRITE OR PHONE FOR FULL DETAILS

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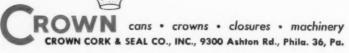


SEAMLESS CROWN SPRA-TAINERS



Some high pressure products found in today's aerosols are as hard to handle as a tiger. Others, like delicate pharmaceuticals and fragrant cosmetics present different but equally difficult problems. For these hard-to-hold products the *seamless* Crown Spra-Tainer offers a safe and practical solution. As originators of the disposable aerosol can, Crown offers a full line of both seamless and fabricated aerosol cans in a wide range of sizes, for every type of product . . . plus more experience in this field than anyone else can provide. For your packaging problems call on the leader . . . call on Crown!

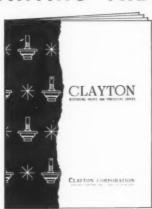
Your Packaging Deserves Crown Quality





No customer resistance with "Nozzle Down" dispensing . . . no buying habits to change! Coast to coast, it's the favorite dispensing method for all types of foam, cream and liquid products . . . America's most familiar, accepted, preferred and bought valves and covers . . . naturally more convenient to use . . . completely trouble-free!

POINTING THE WAY TO GREATER SALES!



Here is your guide to better packaging of aerosols as well as a blueprint for increasing product-acceptance, sales and profits! You and every executive of your company should have this new and important catalog. How many copies would you like? Write, phone or wire us.

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BREAK PROPELLENTS FROM

THROUGH

New "FREON-11"S reduces corrosion and storage problems with products containing alcohol

Development of new "Freon-11"S removes a sales barrier to countless aerosol products already in existence — creates bright new sales prospects for many others that have never

reached the production stage. This new propellent now minimizes the corrosive action that once limited both the storage life and quality of products containing alcohol and propellent-11.

What is "Freon-11"S?

Exhaustive research by Du Pont scientists has shown that corrosion of nonaqueous aerosol products containing alcohol and propellent-11 is caused by hydrochloric acid formed in a free radical reaction between the two—not by hydrolysis of the propellent. "Freon-11"S is Du Pont Freon-11* with a successfully proven stabilizer! that now inhibits this reaction in products containing alcohol.

What are its immediate advantages?

By inhibiting acid formation in aerosol products containing alcohol, "Freon·11"S:

- 1. Practically eliminates container corrosion.
- 2. Greatly lengthens shelf life.
- Prevents development of unpleasant odors or discoloration—previously caused by the free radical reaction.

For what products?

You name them. If they contain alcohol, new opportunities are yours. Some products already being successfully formulated with "Freon-11"S include:

- Hair sprays
- Personal products
- Room deodorants

Price and availability

The price of new "Freon-11"S will be the same as regular "Freon-11". Availability? Immediate, in bulk quantities.

Check your formulation files

How many potentially successful aerosol formulations containing alcohol do you have on file that never reached the production stage because of stability and corrosion problems? How many completely new aerosol applications can this development open up for you?

Samples of "Freon-11"S can now be obtained from your nearest Du Pont sales office. For technical *advice and information, write to: Du Pont Co., "Freon" Products Div., N-2420AC, Wilmington 98, Del.

Patent applied for.

Best-selling aerosols are powered with-

FREON® propellents



BETTER THINGS FOR BETTER LIVING THROUGH CHEMISTRY

*FREON- and F- followed by numerals are Du Pont's required trademarks for its fluorocarbon compellents.

MAY, 1961



RISDON VALVE QUALITY IS VITAL INSURANCE

The payoff point for all the time and money invested in your aerosol product is at the fingertips of the user. That is where repeat sales are made or lost.

When your customer pushes the actuator, the performance-insuring quality of a Risdon valve becomes vital. And nothing less than Risdon quality gives full assurance of customer-pleasing results over the entire life of the package. An inferior valve can turn out to be your most expensive "bargain".

Risdon quality...performance-proven on many millions of packages...is the result of extensive scientific research and development. It is zealously guarded at every stage of valve manufacture by Risdon's uncompromising quality control.

Most leading aerosol packagers keep their success secure by using only Risdon valves to dispense their products.

Contact Risdon for specific information on the valve for your product.

Write For Free Booklets On RISDON Valves

FOR Pressurized Products Packaged in Glass, Metal or Plastic Containers.

DISPENSING Conventional Aerosols, 3-Phase Products, Alcohol Base Products, Water-Base Products, Foam Products, Powder Sprays, Metered Sprays, Ultra-Low Pressure Applications, Products Containing Propellent Emulsions or Dispersions, etc.



THE RISDON MANUFACTURING CO.

Aerosol Division

Naugatuck, Conn.

SOAP and CHEMICAL SPECIALTIES

Aerosol Propellants Up-to-Date

By Robert J. Peterson*, Peterson Filling & Packaging Co. Danville, Ill.

ROPELLANT systems, novel and established, their uses, actual and potential, and economies which may be established by their intelligent application will be presented. We do not intend to present a detailed technical review of the propellants field

Without propellants there would be no aerosol industry, according to Harry Peterson's statement before the 45th International Conference on Weights and Measures, held in Washington, D. C., last year (Soap & Chemical Specialties, July, 1960, p. 163). Propellants, whether liquified or non-condensable gases, create the pressure which makes the aerosol operative. In addition, they affect particle size, act as solvents, are an inherent part of all foams and allow the active materials to be dispensed in a highly effective and efficient fashion.

The presence of the propellant in an aerosol container permits use of highly condensed active materials. As a result, very little product need be dispensed in order to be effective. There are several well defined types of propellant systems which are now being used commercially or are under test in the laboratory.

Fluorocarbons

The first and most common type are the fluorocarbons, such as "Freons" (du Pont), "Genetrons" (Allied), "Isotrons" (Pennsalt) and "Ucons" (Carbide). These gases were first utilized in

1933 in the refrigeration field and found wide application as propellants since the inception of the aerosol industry. These compounds are chlorinated, fluorinated hydrocarbons, characterized by non-flammability, inert behavior, high density, and low toxicity. The mainstays of this group are propellant 12 and propellant 11. These propellants are used commercially in insecticides, room deodorants, hair lacquers, paints and other similar type spray products. Propellant 12 is the work horse with other products such as propellant 11, methylene chloride, and 1,1,1-trichloroethane added to reduce working pressures in the low aerosol containers. In aqueous systems where essentially no hydrolvsis can be tolerated the more expensive propellant 114 is used generally in combination with propellant 12.

The newest fluorinated hydrocarbon, which is in the process of being tested by E. I. du Pont de Nemours & Co., is propellant C-318. This material is currently being checked by the Food and Drug Administration for approval as a non-toxic propellant in food aerosols. It would be best to quote from a recent communication from L. P. Hall, Freon Products Division, E. I. du Pont de Nemours & Co., Wilmington, Del., which relates the current status of this new propellant.

"Recent developments have advanced the date for action on our petition to the Food and Drug Administration to allow the use of 'Freon' C-318 as a food additive to May 3, 1961. We have also been assured by the Food and Drug Administration that they expect to take final action before this date. Of

course, we expect a favorable ruling.

In anticipation of this, we have accumulated a sizable stock of 'Freon' C-318. We are certain that there will be ample material available for the successful launching of new products, and that our plant facilities are adequate for future demands.

Ohio Chemical & Surgical Equipment Company, a Division of Air Reduction Company, Inc., will market mixtures of 'Freon' C-318 and nitrous oxide. Du Pont will sell 'Freon' C-318 directly to food aerosol manufacturers. Both Du Pont and Ohio will offer formulation, engineering, technical and marketing assistance.

We are continuing our laboratory programs designed to assist marketers of food acrosols to make maximum use of 'Freon' C-318, the most revolutionary product in this field."

A copy of Du Pont's bulletin #B-18B giving the detailed technical aspects of this compound may be obtained by contacting Mr. Hall or any Du Pont "Freon" representative. Since this group is not primarily interested in food aerosols, we will not attempt to go into any further details on the C-318 type of propellant.

Hydrocarbons

The second group of propellants, which are attracting a lot of interest, are the hydrocarbons such as n-butane, isobutane, propane, etc. Members of this group can be used alone to dispense water-based products such as window cleaners, shaving creams, spray starches and the like. Actually, they are now being combined with fluorocarbons to serve as propellants for many of the products listed in the first group. Hydrocarbon propellants are primarily used for reasons of economy, an aspect which will be discussed below.

By acting as a watchdog for

^{*}Paper presented at 47th midyear meeting, Chemical Specialties Manufacturers Association, Chicago, May 16.

Table 1. Space Spray Propellant—System A

(Standard type)
14.0 Av.oz. fill: \ 85% Propellant \ 15% Toxicants

Calculations

 $-\frac{14}{16}$ x 0.85 x 0.233 = \$0.1734/can \$0.1734 x 12 = \$2.08/case.

the industry, the Chemical Specialties Manufacturers Association has been instrumental in achieving an exceptionally good aerosol safety record. CSMA recommendations for testing of pressure packages call for all products intended for interstate commerce to pass certain standard flammability tests.

Whenever the subject of hydrocarbon propellants arises, the question of flammability is apt to be raised at the same time. We believe that the admirable safety record should not be put in jeopardy and that the same stringent tests required for fluorocarbon propelled space spray aerosols should be applied to all formulas containing hydrocarbons. On the other hand, we feel that industry should resist any pressures to originate new tests which would specifically rule out hydrocarbons as a propellant. A considerable amount of work has been accomplished toward the successful combination of certain amounts of hydrocarbons with fluorocarbons. The finished aerosol remains a non-flammable package measured by existing tests.

Biological testing of insecticide aerosols has not shown any instances where incorporation of a hydrocarbon has rendered a formula less effective. Actually, where deviations were noted, the addition of small amounts of hydrocarbons appeared to enhance the insecticidal effectiveness of the finished product. However, available evidence to this effect is certainly insufficient at this time to permit any positive claims.

The third and last group of propellants having commercial importance are the non-condensables.

Table 2. Space Spray Propellant—System B

14.0 Av.oz. fill: 42.50% Propellant-12 21.25% Propellant-11 21.25% Methylene chloride 15.00% Toxicants

Calculations

14 x 0.425 x 0.263 = \$0.0978/can 14 x 0.2125 x 0.203 = \$0.0377/can 14 x 0.2125 x 0.1125 = \$0.0209/can 16 x 0.2125 x 0.1125 = \$0.0209/can

\$0.1564 x 12 = \$1.88/case

Savings from

Standard Type: \$0.20/case.

Currently, they are limited to nitrogen, carbon dioxide and nitrous oxide. Some of the unusual gases such as argon have found use in the laboratory only. The non-condensable type propellant is very useful in formulations where limited solubility of the propellant in the active ingredients is desired. Examples include whipping cream, food toppings, dental creams, windshield de-icer, etc. This type of propellant is recommended also for use with certain pharmaceuticals.

As a result of much development work carbon dioxide and nitrous oxide can now be used to dispense residual insecticide sprays. Such packages are in successful commercial production or will be so shortly.

Progress has also been made in the application of carbon dioxide and carbon dioxide/nitrous oxide blends as propellants for space sprays.

Residual sprays being gassed with carbon dioxide to an initial pressure of 100 psi-g. at 70° F. show complete exhaustion of product at final pressure of 63 psi-g. when 30 second spray bursts are discharged in the use tests intended to simulate commercial usage.

We have developed a method of spraying non-aqueous solutions at pressures ranging from 65 psi-g. to 100 psi-g. and 70° F. The propellant is composed of carbon dioxide gas and/or nitrous oxide

Table 3. Space Spray Propellant—System C

 $\begin{array}{lll} 14.0 \; \text{Av.oz.} & \begin{cases} 42.5\% & \text{Propellant-12} \\ 42.5\% & \text{Methylene chloride} \\ 15.0\% & \text{Toxicants} \end{cases} \end{array}$

Calculations

 $\frac{14}{16}$ x 0.425 x 0.263 = \$0.0978/can $\frac{14}{16}$ x 0.425 x 0.1125 = \$0.0418/can TOTAL: \$0.1396/can

 $$0.1396 \times 12 = $1.68/case.$

Savings from Standard Type: \$0.40/case.

gas. Gas composition, pressure, and liquid composition are adjusted in such a way that a spray of desired characteristics will result when the liquid phase is permitted to escape into the atmosphere through a suitable valve mechanism attached to a container of the non-refillable, disposable type.

Research and development in the pressure packaging field are motivated by a multitude of factors, among which cost is doubtless the most powerful. We shall therefore discuss briefly some cost comparisons between various propellant systems in current commercial

To make a meaningful comparison, one requires a standard (Table 1). We propose as standard the regular space spray aerosol consisting of 15% by weight of toxciant solution and 85% propellant. Net contents of the standard package is 14.0 av. ounces. The propellant is to be a 50/50 mixture of propellants 12 and 11. We shall discount all manufacturing losses and use only bulk prices. Under these conditions, the propellant for our standard, which we will call propellant system A, will cost 17.4 cents per unit, or \$2.08 for a case of 12 units.

In formulating propellant system B, methylene chloride is substituted for one half of the propellant 11 incorporated in system A (Table 2). Cost of propellant system B runs to 15.64 cents per unit or \$1.88 per case of 12 units. This represents a saving of 20 cents

(Turn to Page 180)

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Table 4. Space Spray Propellant-System D

14.0 Av.oz. fill:	40% 35%	Propane (Propellant Methylene Toxicants	11
	10/0	TOXICATIES	

Calculation

14 16	0.10	x 0	050	=	\$0 0044/can	
14 16	0.40	x*0.2	203	=	\$0.0711/can	
$\frac{14}{16}$ x	0.35	м О.	1125	-	\$0.0344/can	
	TOTAL				\$0.1099/can	

 $$0.1099 \times 12 = $1.32/case$

Savings from

Standard Type: \$0.76/case

(From Page 178)

per case compared with system A.

In propellant system C (Table 3) methylene chloride replaces entirely the propellant 11 present in system A. This system will be found to cost 13.96 cents per unit or \$1.68 per case of one dozen, 40 cents less than system A.

Finally we will designate system D (Table 4) a propellant mixture composed of propane-10%, methylene chloride-35%, and

Table 6. Residual Propellant System

(Standard type)

30% Propellant-12 14.0 Av.oz. fill: 70% Toxicants

Calculations

 $\frac{14}{16}$ x 0.30 x 0.263 = \$0.0690/can $$0.0690 \times 12 = $0.828/case.$

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Table 5. Summary of Space **Propellant Costs**

	Cost per Case	Savings from Standard.
System A (Standard)	\$2.08	
System B	\$1.88	\$0.20
System C	\$1.68	\$0.40
System D	\$1.32	\$0.76

propellant 11-40%. Cost per unit of space spray insecticide will be 10.99 cents or \$1.32 per case, representing a saving of 76 cents per case compared with the standard propellant.

All of these four propellant systems are being used in space sprays now in commercial distribution (Table 5). It takes little imagination to visualize the wide variations in cost between competitive products. Yet this is an exact picture of the situation prevailing today.

Table 7. Residual Propellant-System E

1	3%	Carbon dioxide		
14.0 Av.oz fill: {	27%	Petroleum distillate		
	70%	Toxicants		

Calculations

-					\$0.0021 /can \$0.0094 /can	
16	TOTAL:		\$0.0115/can			

 $$0.0115 \times 12 = $0.138/case$

Savings from Standard Type: \$0.828 - \$0.138 = \$0.690/case

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For cost comparisons between residual type aerosol insecticides we shall use as standard a 14 ounce fill in a 16 ounce container. The formula will consist of 70% active ingredients (including diluents) and 30% propellant 12. (Table 6)

This residual propellant will cost 6.9 cents per unit or 82.8 cents per case of twelve - again using bulk prices and assuming no manufacturing losses.

If loaded with either carbon dioxide, nitrous oxide, or combinations of these gases, our residual system will contain about 3% gas. The balance of 27% will be made up by additional petroleum distillate diluent. (Table 7) Propellant costs for such a product would be 1.15 cents per unit or 13.8 cents per dozen. Compared with system shown in table 6, savings will amount to 5.75 cents per unit or 69 cents per case.

Aerosol Firms Realign

D'Henri, Inc., of Washington, D. C., and Atlantic Aerosol Associates, Inc., of Frederick, Md., will henceforth be operated as wholly owned divisions of Vim Laboratories, Inc., Adamstown, Md., it was announced late in April.

The consolidated operations will include custom formulation, filling and packaging of aerosols, sprays, cans, jars, and bottles. The firm handles personal products, pharmaceuticals, household and automotive chemical specialties, paints, and other products.

pressure packaging

ATI Appoints Two

Aerosol Techniques, Inc., Bridgeport, Conn., recently an-



Harry W. Fillman

nounced the appointment of Harry W. Fillman as director of manufacturing and C. Donald Schoonmaker as plant engineer.

Mr. Fillman was formerly

cost and budget manager for M & M Candies, Hackettstown, N. J., and Mr. Schoonmaker was pre-



C. Donald Schoonmaker

viously plant engineer with King Container Co., New York, and production manager at Tension Envelope Company, Kansas City, Missouri.

industrial chemicals sales division.

Strouse Stock Split

Stockholders of Strouse, Inc., Norristown, Pa., custom aerosol packers, recently approved a twofor-one split of the firms' common stock.

The split, payable May 8 to stockholders of record April 28, will increase outstanding capitalization to 472,174 shares with a par value of five cents a share.

Carbide Names Holz

"Jack A. Holz has been appointed "Ucon" propellant technical representative for Union Carbide Chemicals, a division of Union Carbide Corp., New York, it was announced recently. Mr. Holz is responsible for the sale of "Ucon" propellants to aerosol producers in the middle west. He will make his headquarters at the company's Chicago offices.

Mr. Holz, who joined Carbide in 1951, was formerly a sales representative for the company's ---+---

Aerocide Dispenser Merges

Carl Durant, president of Aerocide Dispensers, Ltd., Weston, Ontario, recently announced his firm's merger with John Struthers and Co., Ltd., Montreal aerosol fillers. A wholly owned subsidiary of Aerocide Dispensers, John Struthers and Co., will continue operation with Mr. Struthers as president. Additional service and savings to customers is expected to result from the combination of facilities and expanded laboratory controls.

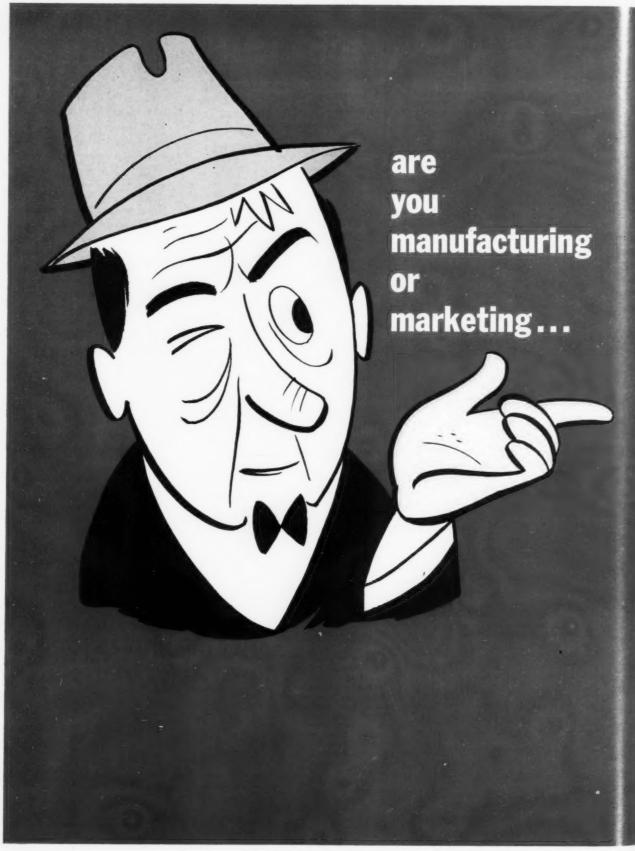
O-I Names Regional Staff

Staff personnel for the new castern regional office of the glass container division of Owens-Illinois Glass Co., Toledo, were announced recently. Kenneth O. Boyer has been named administrative manager; Joseph M. Mueller, manager of service and transportation; and Arthur L. Gehring, manager of quality control. All will be located in New York.

Mr. Boyer had been manager of the division's production planning department in Toledo for the past three years. Since joining O-I in 1937, he has served in facilities planning, price research, and accounts receivable. Mueller, who has been with Owens-Illinois 19 years, was formerly coordinating a new service improvement program for the division's plants and sales branches. Mr. Gehring, located in New York for the past 10 years, had been responsible for quality and specifications in the east.

Carl Durant, right, president of Aerocide Dispensers, Ltd., Weston, Ont., Canada, contract aerosol loader, at firm's 15th anniversary celebration greets John Struthers, head of John Struthers and Co., Montreal, aerosol loader, Mr. Struthers firm was merged with Aerocide Dispensers recently.





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Bright Future Seen for Tandem Aerosols

"A dynamic future awaits the aerosol packaging innovation of combination containers, in which the smaller unit is easily refilled from the larger aerosol," G. Barr & Co., Chicago stated recently. Douglas Atlas, vice-president in charge of sales for the firm predicted "the combination containers will open new sales opportunities in the 100 million unit hair spray market, as well as being applicable to other products in the cosmetic and pharmaceutical fields."

According to Mr. Atlas, there are three systems currently in use, all based on the principle of two different propellant gases, one liquified and one inert. In one system, the transfer of a liquid from an economy-size container is made convenient for the consumer by employing special male and female actuators and valves which are easily recognizable. In this system, both units can be used independently. The purse size receptacle lends itself to encasement in ornamental metal or plastic containers, in all cases.

G. Barr & Co., began working with duo-aerosol units in 1957. The first product was felt to have

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and nical New a drawback as far as consumer acceptance was concerned. The filling process was achieved as a result of a temperature differential which necessitated refrigerating the smaller unit. The company was approached by another cosmetic house for assistance in a similar project. This firm had developed a glass bottle with plastic valves on either end; one being used in filling the container from the large can and the other for the spraying operation. As interest in the concept grew, Barr continued its experimentation until the current aerosol systems were developed.

"We believe these combination aerosols answer a real need by offering women extreme functionality within economic realities. And as importantly, at the marketing level, we are confident the duoaerosols present increased sales opportunities for the alert businessman," Mr. Atlas stated.

New Newman-Green Plant

. A new, 20,000 square foot molding and stamping plant has been added to the Newman-Green, Inc.'s manufacturing facilities in Addison, Ill. The new plant will

Easy refilling operation of duo-aerosols demonstrated by model. Light pressure from nozzle of purse-size unit brings fluid bubbling into glass container.

Components of one aerosol combination produced by G. Barr & Co., Chicago.

handle the firm's molding and stamping operations for the manufacture of the component parts used in their aerosol valves.

The original manufacturing facilities, adjacent to the new plant, will continue to handle the complete manufacture and assembly of all types of aerosol valves.

In National Distribution

"Star-Flo" spray starch, a new aerosol packaged product, is now being distributed nationally by A. E. Staley Manufacturing Co., Decatur, Ill. It was first test marketed in Springfield, Ill., and Kalamazoo, Mich., last fall.

Jones O-I Vice-President

Ebon C. Jones was recently named vice-president and manager of market planning and administration of the Glass Container division of Owens-Illinois Glass Co., Toledo.

The division's marketing area east of the Rocky Mountains was reorganized into three regions, and six regional managers were named vice-presidents: Robert F. Miller and Earle G. Ingels, eastern region; Kevin K. Hepp and Milan G. Kahl, midwestern region; and Frank Jones, Jr., and Harold Ottensen, southern region.

From left, purse-size container which is filled from aerosol can at right. Male and female actuators which fit on easily for spraying action. Glass bottle may be encased in brass fitting (center) for purse use or given other special ornamentation.

Model demonstrates new aerosol combination introduced by G. Barr & Co., Chicago. Economy can may be sprayed independently of smaller purse-size unit at right. The purse unit may be repeatedly filled from larger can in a fast, easy operation.









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labor problems ... no warehouse problems ... no shutdowns or seasonal layoffs ... no obsolescence. And equally important, you get the benefit of the contract filler's experience ... his trained personnel ... his versatility and adaptability ... his quality control and fixed costs.

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New Edition of British Aerosol Book

THE long awaited second edition of Pressurized Packaging (Aerosols), by Herzka and Pickthall has at last reached our shores. The British text has gained in girth and up-to-date information since the book's debut in 1958.

An entirely new section has been added dealing with legal requirements pertaining to aerosol products. The first of the two chapters constituting this section covers the regulations pertaining to pressurized packages in various countries. Regulations specifically intended to cover aerosols exist in only a few countries, notably the United States and England. Both sets of rules are outlined and the L. C. C. regulations are presented in tabular forr[§] United States regulations are being observed in Norway.

A draft for extensive legislation covering all phases of pressure pac1 s been set up in Germany a ablished in full '... German reguin this chapt lations would callude propellant 11 from the list of gases admitted for this purpose. "According to certain information, there is a danger of "Frigen 11" forming poisonous alcohols (poisons affecting the respiratory tracts) in the presence of water," the German draft states. Refilling of used dispensers would be prohibited "as a matter of principle."

Also reproduced in full is the text of a draft specification for "Packs for Pressurized Dispensers" drawn up in 1959 by the South African Bureau of Standards.

The second chapter in Section D lists all patents dealing with pressurized packages which have come to the notice of the authors. Patents are grouped by countries and arranged numerically within these groups. Useful, though this patent list is in its present form, it would gain by being cross indexed by patentees or assignees.

The chapter dealing with compressed gases has been much enlarged and formulations using compressed gas propellants are included in the relevant sections. Trade marks and suppliers lists have been brought up to date.

Like its predecessor, this edition is a successful blend of thorough literature coverage and extensive practical experience in laboratory and production. Anyone concerned with the numerous facets of pressure packaging will find it a helpful guide through the maze of problems inherent in this complex field.

Pressurized Packaging (Aerosols), Second Edition, by A. Herzka, consultant, London, and J. Pickthall, International Flavors and Fragrances (Gt. Britain) Ltd., Enfield, Middlesex, England. Published by Academic Press, Inc., New York, and Butterworths, London, 1961, pp. 510, cloth covered, price \$15.00.

New Spray Lubricant

Spray Products Corp., Camden, N. J., recently announced the addition of "Spray Chain Roller Dri-Loob" lubricant, to its line of products. Developed for construction, farm and industrial equipment where roller chain equipment needs maximum protection from friction, rust and the elements, "Spray Chain Roller Dri-Loob" is said to lubricate hard to reach areas. Spray is applied from a distance of a few inches in short bursts and allowed to set.

Newest addition to line of aerosol products of Spray Products Corp., Camden, N. J., is "Spray Chain Roller Dri-Loob." Product is designed to lubricate hard to reach areas.





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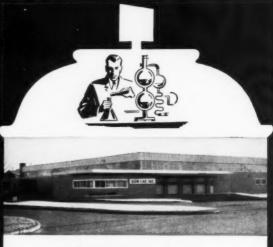
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Aerosols are not just conventional products in pressurized packages! The problems of propellant and container compatibility with active and adjunct ingredients demand special knowledge and experience from inception to final consumer acceptance. If your aerosol product . . . personal, industrial or household . . . does the proper job but is lagging behind competition, perhaps you need an individually tailored fragrance. The FRIES & FRIES Aerosol Laboratories, staffed with experts in this rapidly expanding field, are ready to give your product the fragrance that makes the difference between a winner and an also ran. Contact your FRIES & FRIES representative . . . now!



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For complete information on how Sun-Lac's expanded facilities can help you—write, wire or phone . . .

SUN-LAC, INC.

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aerosol patents

No. 2,974,453. Method for Pressure Filling Aerosol Containers, patented by Philip Meshberg, 290 Euclid Street, Fairfield, Conn. This patent teaches the method of pressure filling an aerosol container having a metering valve means embody-ing a two-part stem and a measuring ing a two-part stem and a measuring housing having a seal cooperating with a valving portion adjacent the inner end of a first part of said stem to form a normally open inner valve means for controlling passage of the aerosol from the container to the housing and a second seal against which the other end of said first part of the stem is normally used by of the stem is normally urged by urging means to form a normally closed outer valve means for controlling passage of the aerosol from the ing passage of the aerosol from the housing during the dispensing thereof through dispensing passages in said other part of the stem when secured to said first part; the steps of assembling the housing having the two seals and cooperating first part of the stem with the container analysing the seals and cooperating first part of the stem with the container, applying the nozzle of a pressure filling means to said first part of the stem, depress-ing said first part of the stem against the urging means to a position where-in the seal at the top thereof is brok-en and the seal at the bottom is not closed, feeding an aerosol under pres sure through said nozzle and past said seals into the container to fill the container, and thereafter assembling the other part of the valve stem with the first part to operate the valve means to dispense measured amounts of aerosol from the container.

No. 2,974,880. Aerosol Spray Head, patented by James U. Stewart, Whittier, and Rex C. Cooprider, Downey, Calif., assignors to the Drackett Co., Cincinnati. Covered is a spray head comprising a casing of integral construction formed with a subjudgical bore above and and cylindrical bore blind at one end and opening through the casing at its other end, said casing having a discharge orifice therein communicating axially with the blind end of said bore, and an inlet communicating with said bore intermediate its ends, a plug frictionally fixed in and sealing the opening of said bore, a fluid dis-tributing and swirling member in-tegral with said plug extending axially into and snugly received in the blind end of said bore adjacent said orifice, end of said bore adjacent said offlice, said member being formed with a groove cooperating with the wall of said bore to define a passage estab-lishing communication between said inlet and said orifice.

No. 2,975,943. Actuation Assistant for Aerosol Dispenser Valves, patented by Gilbert De Wayne Miles, Ossining, Russell Park McGhie, New York, and Charles W. Fries, Long Island City, N. Y., assignors to Colgate-Palmolive Co., New York. For a dispensing container for pressurized material having at its top a normally closed discharge valve which

opens when depressed and a spouted valve actuator, through the spout of which contained material is dispensed upon opening of the valve, that im-provement is covered which comprises a substantially horizontal lever actuation assistant for the valve hav-ing means at one end to slip onto the spout and to contact the actuation assistant with a movement restricting part of the actuator held fast to the container, retaining means on said lever for holding the same end of the actuation assistant to the spout so as substantially to prevent relative vertical movement of the lever and spout at that point, stop means on the actuation assistant which prevents horizontal movement of the lever in the direction of the spout by making contact with a part of the actuator held fast to the container and, in conjunction with the lever actuation assistant being held against movement in the opposite direction by contact with the actuator, holds the actuation assistant firmly in place, preventing horizontal movement and, extending downwardly from the lever actuation assistant, a projection over the discharge valve which is movable far

enough downwardly when the lever is depressed to open the discharge valve, the lever being of sufficient length so that the force required at the end thereof to actuate the discharge valve is appreciably less than that other-wise required for direct actuation of the valve.

No. 2,975, 944. Foam Valve Assembly, patented by David Daniel Michel, 39 S. La Salle Street, Chicago. Described is a dispensing valve for use with a container for holding fluent materials, said valve including an elongated, axially apertured adjutage and a cooperating plug member, said adjutage having a valve seat, should-er means disposed within the aperture of said adjutage and a resilient tensioning portion of reduced cross sectional area intermediate said valve seat and said shoulder means, said plug member having an obturator, hook means, and an elongate body portion intermediate said obturator and said hook means, said body portion having a plurality of longitudintion having a plurality of longitudin-ally extending radially protruding, peripherally disposed ribs, said hook means and body portion being dis-posed within the aperture of said ad-jutage to define a passageway there-through, said obturator being trans-versely disposed with respect to said body portion and adapted to sealingly engage said valve seat to prevent fluid flow through the aperture in said adjutage, said hook means ex-

(Turn to Page 249)



NEW KIWI® AUTOMATIC CODE DATER

Mounts on conveyor line or case sealer.

Uses ink reservoir system. One internal inking with poly squeeze bottle lasts from two to four weeks, or 25,000 to 150,000 impressions, depending upon the amount of printing required.

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Production...

EQUIPMENT . MATERIALS . PROCESSION

Principle Principle Continues

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Truly a beautifully engineered ensemble so wisely selected by

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It is guaranteeing speed, accuracy and extreme neatness. Daily on the job, yes, proving every claim KIEFER makes for it.

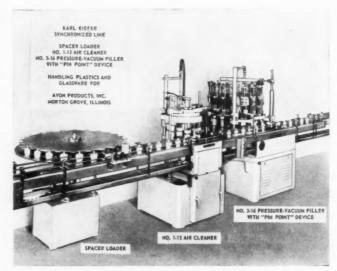
KIEFER CONTAINER CLEANER

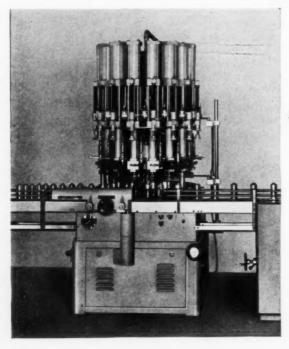
Doing its work in an upright fashion rapidly and meticulously.

KIEFER PRESSURE-VACUUM FILLER

With the PIN-POINT device that does the filling WITHOUT the use of a SEAL. Amazing precision in -

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16-STEM

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Delivers up to 250 CPM depending on your valve selection. It measures the propellent gas deftly and to perfection. We have greater and lesser chargers to meet your requirements.

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PRODUCTION section

Measuring Detergent Consistency

By Hans E. Tschakert,*

Chem. Werke Huels, A.G., Marl-Huels, Germany

ETERGENT pastes exhibit at certain concentrations and temperatures consistencies typical for each set of conditions. Viscosity changes in liquids are known to be usually not linear with temperature changes. The same is true of ductility in pastes. However, viscosities of liquids can generally be measured by conventional methods.

Temperatures encountered in the actual processing of powder, liquid, or paste form detergents cover a wide range. The surfactant leaving storage may be near freezing in winter; temperatures immediately preceding spray drying of the slurry approach boiling point. A detergent slurry may be charged at low temperature and heated subsequently or it may be charged and worked at elevated temperatures.

For a grease solvent detergent paste, components are first heated thoroughly and then stirred until cool, so that the desired consistency may be achieved without product separation.

To make our test methods useful, we had to adapt them to the behavior of commercially established detergent formulations under the processing conditions outlined above.

Our plasticity measurements were carried out on a "Plastograph" especially developed for this purpose by Messrs. Brabender of Duisburg.** This instrument widens the range of precisely measurable viscosities of pastes at fixed temperatures.

Special attention has been given to plasticity values as related to concentrations and temperatures occurring in production practice of tetrapropylene benzene sulfonates and mixtures of these with other surface active agents and special additives.

Only a selection will be presented of the numerous measurements made on syndets under different conditions.

Viscosity, Plasticity Defined

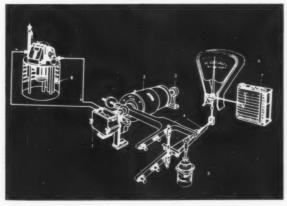
The scope covered by the terms "Viscosity," "Ductility," and "Plasticity" cannot be exactly circumscribed, according to Westphal and Roehm.

Viscosity may be represented as a function of slide and shear velocities (shear stress) in the form of a flow curve. However, this is not easy since viscosity is frequently subject to elastic and plastic deformations of the material and some time may elapse before a balance is established.

**In the United States: C. W. Brabender Instruments, Inc., 50 East Wesley St., South Hackensack, N. J.

*Paper presented at 3rd International Congress of Surface Activity, Cologne, Sept. 1960.

Figure la.



PLATOR AND THE PLATOR

Figure 1b.



FMC Neverstop meets Lever Brothers requirements for high-speed carton filling

"ALL" detergent, marketed by world famous Lever Brothers, has been packaged on FMC Neverstop carton filling and sealing machines for several years. The performance-proved Neverstop assures Lever Brothers of consistent precision filling on long runs with a minimum of attention. The three carton sizes illustrated range from 1 lb. 8 oz. to 9 lb. 13 oz.

Lever Brothers is one of many well-known companies who rely on Neverstop for packaging such products as soap powders, cereals, rice, cake mixes, etc. • The Neverstop automatically opens cartons from a magazine supply then code dates, bottom seals, fills, top seals and delivers them under the supervision of a single attendant.

Six models offer a wide choice of speeds (up to 450 per minute), capacities (up to 10 lbs.) and carton sizes (up to 11" x 15"). ● Three different types of filling methods—pocket, auger and the exclusive vibrametric system—are available to handle a broad range of product flowing characteristics. New multiple filling head can simultaneously fill two or three different products into a partitioned carton. ● Optional equipment includes automatic checkweighing of each carton with feedback to volumetric control... and Calk-Sealing to eliminate the need for inner-bags or overwraps with certain materials. ● FMC also offers a complete line of both automatic and semi-automatic fillers for medium and short production

runs...and SIG double package makers for products requiring inner bags or overwraps.



Putting Ideas to Work



FOOD MACHINERY AND CHEMICAL CORPORATION

FMC Packaging Machinery Division
Stokes & Smith Plant
4928 SUMMERDALE AVENUE, PHILADELPHIA 24, PA.

For the full story of FMC Neverstop fillers, write for your copy of Bulletin P-808.



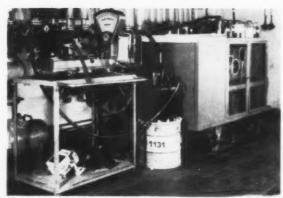


Figure 2a



Figure 3a

Furthermore, viscosity or interior friction of a liquid is subject to very weak forces of shear which may fade after a very short period of time, as opposed to those in a solid.

The unit of dynamic viscosity is one poise (P); in the cgssystem: Dyn sec. $^{-2} = \text{cm}^{-1}$ g sec. $^{-1}$ and in the technical measuring system: kp sec. $= ^{-2}$. The relation of tenacity to density is designated kinematic viscosity and its unit is one stoke (St). The one hundredth part is one "centipoise" (=cP) or one "centistoke (=cSt), respectively.

Special rheological terms such as Newtonian liquids; structural viscosity; thixotropy; rheopecty; flow limit (flow curve); and others will not be discussed in detail.

In materials possessed of elastic as well as plastic properties,

interior friction directly influences tackiness, a characteristic which is dependent also upon surface tension of the material or system.

Plasticity is a material's capacity for permanent deformation, according to Roehm. It is determined by the yield point, which is the shear stress at which solidification or liquifaction occurs. This point may vary with temperature, so that a material, easily deformed at room temperature may still be relatively plastic at lower temperatures.

Apparatus and Procedure

To measure viscosity, plastiscity, or ductility of various detergent materials, we used the Plastograph, mentioned earlier. This apparatus is schematically represented in Fig. 1a. The mixing device (1) is driven by a motor (2) suspended on free floating bearings (3). Resistance offered by the test sample to the mixer arms is translated into torque in the motor housing, which is set to revolve countercurrently to the revolutions of the motor shaft. These torque impulses in turn are transmitted

Figure 4a



over a system of levers (4), movements of which are damped by an oil damper (5), to a scale and recording device (7). Both scale and recording tape are divided into units of from zero to 1000. The mixer is equipped with a double walled jacket (8) which permits temperature control. Fig. 1b. shows the apparatus in operation.

In our original work we used a Plastograph featuring a mixer with two delta bladed rotors revolving countercurrently at 38 rpm which could be stepped up to 56 rpm. The lever system, mentioned earlier, transmits product resistance practically without friction to the balance, which is calibrated for a 1000 units. The scale can be set so that one unit corresponds to a torque of 1 mkg (measuring ratio 1:5) or to 0.2 mkg (measuring ratio 1:1). The tape moves at the rate of one cm/min. To measure (Turn to Page 219)

Figure 4b

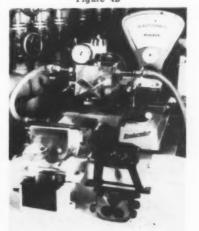
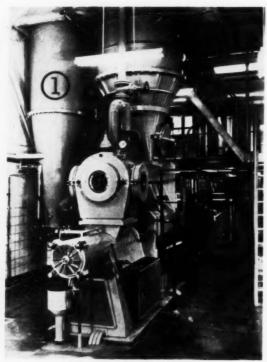


Figure 3b



MAY, 1961

G. MAZZONI, S.P.A.



VACUUM COOLER & DRIER

CONTINUOUS VACUUM PLANTS

For cooling, drying and extruding all kinds of soaps up to 84% T.F.A. Capacities range from 100 to 10,000 Kgs. per hour.

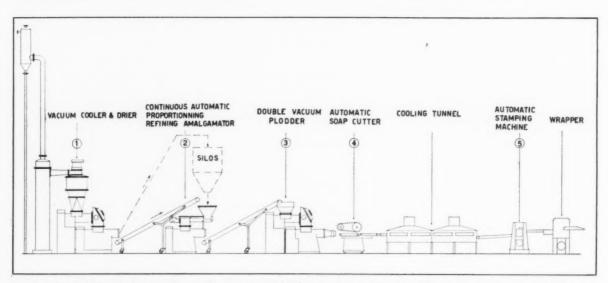
The "MAZZONI" continuous soap plants are outstanding because:

They are economical: Their requirements for steam, water and power are extremely low! Only one operator is required! No scrap soap is produced!

They perform better: 100% "Beta Phase" is guaranteed and gives extra mildness and extra foam even without coconut oil . . . no twisting or distortion!

They are extremely flexible: The same plant also can manufacture pure or built household soaps, flake and powder dried base, etc. from 35 to 84% T.F.A. and more.

NEW! SPECIALLY DESIGNED LINES FOR SYNTHETIC TOILET BAR!!



Layout of our continuous toilet soap line. Fully continuous or batch processing possible using chips silos. Our line automatically produces fully refined, first class toilet soap with no roll mills. The individual machines that are employed in the above sketch appear on this and the facing page. A complete line or individual units are available with production capacities of 250 to 1500 Kgs. per hour.

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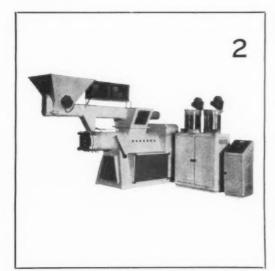
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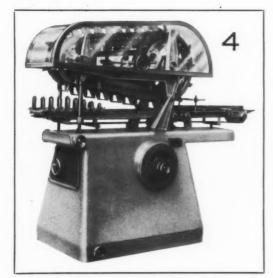
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RLD



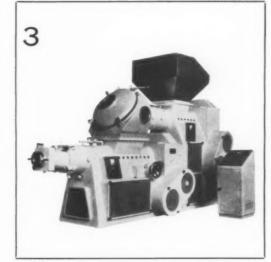
CONTINUOUS AUTOMATIC PROPORTIONING REFINING AMALGAMATOR

Units shown on this page are available individually. They



AUTOMATIC SOAP CUTTER "TV"

Adjustable cutting length
by means of handwheel



DUPLEX — DOUBLE VACUUM PLODDER
Refiner and Extruder

appear as numbered in production line diagram on facing page.



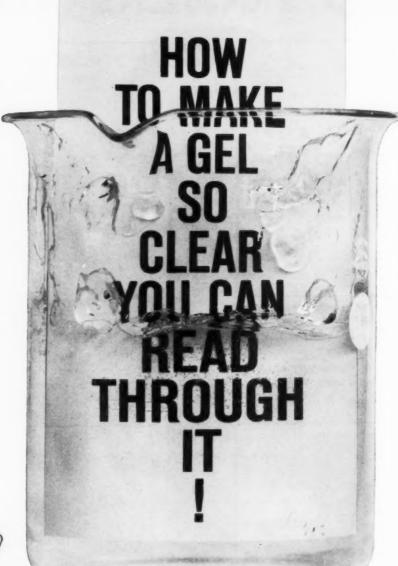
AUTOMATIC SOAP STAMPING MACHINE

Type "St-S" stamping speed up to 125 per minute.

Type "St-D" stamping speed up to 240 per minute.

Type "St-O" for capacity molds. Stamping speed from 100 to 200 per minute.

Your inquiry is welcomed! We send, without obligation, data sheets and other literature on this equipment. Let our staff solve your manufacturing problems! We want you to get the most from your raw materials!



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USE CARBOPOL 940.

This Carbopol water-soluble resin

was designed expressly for cosmetics. It gives you real clarity. And it gives you the same high viscosity, ease of stirring and pumping and the good spreading qualities you get from any Carbopol resin—with a degree of clarity no gelling agent has been able to provide before.

Carbopol 940 is compatible with most materials frequently used in water-base dispersions. It retains

its viscosity

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synthetic polymers at room temperatures, elevated temperatures, during prolonged aging periods, and in the presence of bacteria and fungi.

Samples and information are available. Write Department PC-3, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

B.F.Goodrich Chemical

a division of The B.F.Goodrich Company



soap plant observer

By Willis J. Beach,

Technical Service Department, Sugar Beet Products Co.

NUMBER of volumetric displacement meters, in addition to the "Neptune" meters described last month, feature a gear changing arrangement which permits in-line correction of calibration. This information reached the author after publication of last month's column.

Moreover, there is a fairly simple and conventional way of insuring that the meter's delivery is in agreement with its indicating system. To discuss this procedure we must first take a look at the terminology used by meter experts.

A fast meter is one that delivers less volume than it says it is doing. For example, it may be delivering nine and a fraction gallons at a reading of ten. This might well be the gasoline station attendant's dream but a fast or slow meter can create annoying inventory problems. Where such a meter is used to deliver a controlled charge of liquid to a batch tank or reactor it will cause an insidious drift away from correct proportioning.

To correct fast or slow operation, the meter is always made to operate fast by installation of suitable gears-a setting at 3 or 4% fast is satisfactory. Let us assume that we so correct the meter that it delivers about 9.5 gallons at an indication of 10. This indication is termed a "neutral setting." We then install a by-pass line around the meter of 1/4-inch tube stock of the appropriate material of construction and place a cap-screwtopped needle valve in the line to offer a delicate means of throttling flow. The valve should be springloaded with sufficient tension to prevent line or process vibrations from influencing the setting. The material is then calibrated by a



weight or volume check on delivery and the proper increment is added to the "neutral setting" by adjusting the by-pass flow until actual delivery is brought up to equal the meter indication. The needle valve is then set so that the amount bypassed will remain constant in spite of shock or vibration.

Automatic Weighing System

Reliable control of ingredients going into a process or batch tank can also be accomplished by automatic weighing systems. The volume measuring devices require correction for specific gravity to obtain true mass flow. The most accurate way to measure mass flow is to measure the length of time required to flow a known weight of liquid.

For handling highly corrosive fluids, the weighing approach offers not only the inherent closer accuracy of this type of system but also elimination of contact of corrosive fluid with delicate mechanisms, rotating parts, etc.

Thanks to modern industrial electronics the scales now available with weigh tanks offer at least as many varieties of con-

trol as do the meters. Frequently, it is desired to have a completely automatic weighing operation or to have scales control the operation of other machinery. The circuitry, wiring and controls necessary to accomplish this are very complicated. All of them, however, are activated by an initial impulse received from the scale.

Applications of the electrical control equipment, actuated by the scale, are so many and varied that it is beyond the scope of our column to do more than list a few of them offered by the Fairbanks-Morse scale*: (1) Filling a con-(2) Single ingredient batching, one batch; (3) Multiingredient batching, one batch; (4) Single ingredient batching, continuous; (5) Multi-ingredient batching, continuous; (6) Timefeeding of pre-determined amounts; (7) Conveyor control with allied machinery; (8) Automatic charging on continuous cycle; (9) Selfservice weighing.

Automatic scales for weigh tanks are preset automatically or manually so that when the proper weight of material is in the tank a moving interceptor actuates a cut-off switch. The selection of the proper type of cutoff switch is one of the most important decisions in the purchase of automatic weighing equipment and your scale company representative will provide the necessary counsel.

The Fairbanks-Morse scales can be equipped with both stationary and adjustable photo-electric cell cutoffs, mercoid magnetic cutoffs, and both cutoff types with explosion-proof circuitry. Cutoffs are also available employing the reed switch. Some information on the application of these various cut-

(Turn to Page 218)

*Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5.



The Standard-Knapp Type 455 Glu-Liner glues cases neatly, securely, at low cost.



UGH! sums up the way a man feels when he sees how unnecessary it is to be messy and wasteful in case gluing and sealing. When he sees that messy glue pots like the one shown are things of the past—that now he can put his cases through a unit that applies glue in neat, quick-gripping stripes instead of wasteful bands—that applies glue only on case flaps in a precise skip-gap pattern—that employs a pressure-fed, airtight system proven in hundreds of installations. If case gluing is a key operation with you, then you ought to investigate the Standard-Knapp Glu-Liner—the new and field-tested case gluer that's always ready to go, that glues your cases but not your product or floors, that pays for itself in glue savings alone. For the solid cost-reducing facts, write Emhart Manufacturing Company,

Portland Division, Portland, Connecticut.



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SOAP and CHEMICAL SPECIALTIES



ULTRA SURFACE ACTIVE AGENTS

a
convenient
reference
chart
to guide you
in the selection of
ultra
surface
active
agents

ULTRA SURFACE ACTIVE AGENTS AND THEM



This ready-reference chart offers a bird's-eye view of Ultra's full. th range line of surface active agents. It provides a concise frame of pl reference for the detailed application information available in Ultra's fo technical literature. The products listed in this table represent one of ar the most complete lines of surface active agents available to the or chemical and allied industries. They find application in such diverse tid fields as the processing of metals, textiles, paper and leather, and in

PRODUCT	FORM	ACTIVE INGREDIENT	% ACT	IVE PP
ALKYL ARYL SULFONATES	DRY		13 1131	
Sulframin* AB40 Flakes	flake	Sodium dodecylbenzene sulfonate	40	For
Sulframin AB40 Powder	powder	Sodium dodecylbenzene sulfonate	40	1
Sulframin AB40 Beads	bead	Sodium dodecylbenzene sulfonate	39	1
Sulframin AB40Y	flake	Modified alkyl aryl sulfonate	40	Mod
Sulframin AB40C	flake	Sulframin AB40 plus CMC	40	Cont
Sulframin AB Concentrate Flakes	flake	Sodium dodecylbenzene sulfonate	85	High
Sulframin AB Concentrate Powder	powder	Sodium dodecylbenzene sulfonate	85	High
Sulframin NAB	powder	Sodium nonylbenzene sulfonate	80	Low
Sulframin ABS	powder	Medium molecular weight alkyl aryl sulfonate	83	For o
ALKYL ARYL SULFONATES	LIQUID . SLURRY . GEL			1
Sulframin E	liquid	Alkyl aryl sulfonate plus nonionic detergent	25	Modi
Sulframin E50	gel	Alkyl aryl sulfonate plus nonionic detergent	50	Conc
Sulframin KE	liquid	Dodecylbenzene sulfonate	25	For I
Sulframin KE50	gel	Dodecylbenzene sulfonate	50	Conc
Sulframin L	gel	Alkyl aryl sulfonate plus amine condensates	20	Modi
Sulframin L Concentrate	gel	Alkyl aryl sulfonate plus amine condensates	45	Conc
Sulframin ABS Liquid	liquid	Medium molecular weight alkyl aryl sulfonate	30	High
Sulframin AB Slurry	slurry	Sodium dodecylbenzene sulfonate	45	Paste
Sulframin Sulfonic Acid	liquid	Dodecylbenzene sulfonic acid	87	For in
BUILT DETERGENTS				1
Sulframin HD Beads	bead	Built alkyl aryl sulfonate	_	leavy
Sulframin LD Beads	bead	Lightly built alkyl aryl sulfonate	-	or d
Neopone LO * Beads	bead	Built nonionic	_	low
NONIONICS				
Neopone® NP10	liquid	Nonylphenol ethylene oxide condensate		For lie
Neopone G-3	liquid	Ethoxylated oleoyl ethanolamide	100	Gener
AMINE CONDENSATES		,		
Ultrapole® S	liquid	2:1 coconut diethanolamide		Jeterg
Ultrapole SO	liquid	Modified coconut diethanolamide		digh t
Ultrapole DL	liquid	Modified diethanolamide		Dil sol
Ultrapole LSCM	liquid	Modified coconut diethanolamide	100	digh a
SUPERAMIDES			00	
Ultrapole LDA 9005	waxy solid	1:1 lauroyl diethanolamide		oam :
Ultrapole LDA 9025	waxy solid	1:1 lauroyl diethanolamide		oam s
Ultrapole L	waxy solid	Lauroyl isopropanolamide	90	valii
HYDROTROPES			05)
Sodium Toluene Sulfonate	powder	As named	95	Sound!
Sodium Toluene Sulfonate	liquid	As named	1 33	oupli
Sodium Xylene Sulfonate	powder	As named	95	anti-
Sodium Xylene Sulfonate	fiquid	As named	40	
SOFTENERS				aut:
Ultramin® SS25	gel	Stearic acid alkanolamide		extile
Ultramin SS	waxy solid	Stearic acid alkanolamide	100	oncen

		C	ОМРО	SITI	ON	TYP	ICAL	PROF	ERT	IES
HEI	PPLICATIONS									
ra's full- rame of n Ultra's nt one of e to the diverse r, and in	the manufacture of rubber, cosmetics, concrete, pharmaceuticals and plastics. These products comprise a full line of detergent components for the manufacturer of cleaning compounds. Ultra's modern plants are located in the heart of major national manufacturing regions in order to provide the utmost in delivery and service. Detailed information on products and their applications is available on request.	% Fatty Acid (as lauric acid)	% Sodium Sulfate	% Free amine (as DEA)	% Moisture	Specific gravity	pH (1% in distilled H _. O)	Surface tension 0.1% (cps.)	Draves 0.1% (in seconds)	Ross-Miles 0.1% (in ml.)
			50		1.0	0.40	7.5	20	10	275
39 40 40	for dry blended compounds • dishwashing • industrial and institutional cleaners for dry blended compounds • dishwashing • industrial and institutional cleaners spray-dried for high bulk • contains foam stabilizer • for cleaning compounds • bubble bath Modified for rapid solution • for dry blended cleaning compounds contains CMC • for compounding laundry and dishwashing detergents High active • for low salt or high builder content products High active • for low salt or high builder content products Low molecular weight for rapid cold water solubility • air-entrainment For cold water solubility • cleaning compounds • air-entrainment		58 58 51 53 55 13 13 16 15		1.0 1.0 2.0 - 1.5 1.5 1.5 1.5	0.48 0.68 0.2 0.5 0.35 0.53 0.50 0.40	7.5 7.0 - 8.5 7.5 7.5	30 30 29 30 30 29 29 30 29	12 10 12 12 5 5 24	375 375 360 370 370 360 360 290 370
25	Modified with nonionic for dense, creamy foams • bubble bath	_	3		72	1.05	6.7	31	30	250
50 25 50	Concentrated form of Sulframin E for liquid cleaners • textile processing • bubble liquids Concentrated form of Sulframin KE	- - -	6 5 10		42 70 40	0.56 1.05 0.56	7.0 7.0	30 50	50 15	250 300 300
	flodified for textile use • efficient detergent for continuous boil-off and dye bath concentrated form of Sulframin L	_	1.5	_	77 50	0.51	7.5	28		175 175
45	High water solubility • compounding liquid detergents Paste form • for building liquid and dry products For in-plant neutralization		7		47 3.5	1.10 1.08 1.10	7.0 7.5	30 - -		240
-	eavy-duty detergent • high foamer • for top loading laundry machines for dishwashing and general cleaning low foam laundry detergent	_ _ _			_	.26	10.5 10.5 10.5	29	24	315 300 30
	For liquid compounds • laundry detergents • textile processing • hard surface cleaners General purpose emulsifier	0.5	_	_	_	1.05 0.90	7.2	33.5	7	140
100 97	Detergent and viscosity builder • for liquid cleaners • shampoos • textile processing digh viscosity builder for liquid floor cleaners Discluble • dry cleaning charge soaps • w/o emulsions	5 16 5	-	25 - 11	_ <2	1.00 1.00 .99		30	30	200
100	figh alkali tolerance for textile processing	36	-	20	-	1.00	7.5	-	-	-
68	oam stabilizer for shampoos and bubble baths foam stabilizer for light-duty liquid detergents foam stabilizer for detergents and cleaning compounds	- - <2	_	5 25 <2	_	0.96 1.00 0.90	9.2 9.2 9.1			
95 40 95 40	oupling agents and solubilizers for liquid laundry and dishwashing detergents anti-blocking agents • solvents for organic reactions	-	2.0	1 1 1	2 56 2	0.40 1.20 0.50	8.0			_
40		-	0.8		56	1.20	8.0	-		_
	extile softener • cosmetic cream ingredient	1 5	_	_	75 —	0.90		_	_	_

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1. Across-the-river view of Ultra's plant and laboratories at Paterson, N.J.

Ultra Chemical Works. Inc.

division of Witco Chemical Company,

Inc.



2. Giant bins hold up to 600,000 lbs. of inorganic detergent raw materials.



3. This unit at Chicago is one of three Ultra plants that manufacture hydrotropes which are used as solubilizers for liquid detergents.

4. This completely integrated plant at Chicago was completed in 1960. Facilities parallel the Paterson plant.

5. Rapid heat exchange and high

important in a continuous

shear agitation are

sulfonation process.

Shown here is the

Ultra unit at Paterson, N.J.

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6. Glass lined reactors at the Paterson plant insure $the\ manufacture$ of high quality products.



7. Sizable storage capacity for finished product at Ultra's Los Angeles plant permits rapid delivery as well as flexibility in servicing customers.

products and processes

Hard Water Soap

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Soap bars which do not form a precipitate even when used in water of 20° hardness are said to result from a 10 per cent addition of monolauric acid ester of dioxyethyl urea to a soap base made from 80 per cent tallow and 20 per cent coconut oil. The additive is incorporated in the crutcher. The soap is then milled, extruded, and cut into bars in the usual manner. German patent application, filed by Chemische Fabrik Dueren, G.m.b.H., Dueren.

Furniture Restoring Wax

Furniture may be freshened and polished by application of a mixture of five kilos mineral oil and one kilo of white ceresine wax. This mixture is allowed to remain on the furniture for 24 hours prior to polishing.

Another furniture cleaning and polishing compound is composed of:

	kilos
Oil of camphor	1
Oil of citronella	1
Petroleum distillate (kerosene)	11
Paraffin	2
Seifen-Oele-Fette-Wachse,	March
15, p. 130.	

Silicates in Detergents

Sodium silicate incorporated in a household detergent acts not only as corrosion inhibitor and antiredeposition agent but actually aids detergency, according to Silicate P's & Q's, April 1961, published by Philadelphia Quartz Co., Philadelphia 6.

"The silicate for spray dried household mixtures should be chosen from the composition range of %SiO₂/%Na₂O-1.6 to 2.4," the author advises. "In this area optimum detergency is found and the thickening action in the slurry is at a minimum," he continues. Holding time of the slurry should be as brief as possible to

avoid acid action by other ingredients upon the silicate.

Product quality is said to be improved by increased silicate content. Acidity from tower gases or from other ingredients of the slurry is thus distributed over a larger quantity of silicate and causes a smaller shift in the silicate/alkali

If polyphosphate and silicate are incorporated in amounts of about 25 per cent each, practically no insolubles will be present in the freshly sprayed product, according to the author. Packaging of the powder with an efficient moisture barrier ensures that insolubles formation remains insignificant even over several months shelf storage.

Corrosion by Anionics

The rate of corrosion of soft steel, zinc, aluminum, and tin was determined in the presence of 10 anionic agents and triethanolamine in aqueous solutions. Solutions of sodium oleate, triethanolamine oleate, Turkey red oil, and triethanolamine did not attack soft steel. Zinc was corroded by every agent tested. Tin was not attacked by triethanolamine salts except by triethanolamine dodecylbenzenesulfonate and Turkey red oil. Yoichi Kato and Seimi Sato in Kogyo Kagaku Zasshi, 63, 1726-9 (1960).

Solid Space Deodorant

A solid room deodorant may be made by melting in moderate heat paraformaldehyde — 3 parts; oak moss extract—3 parts; oxidized wax—94 parts. The liquid melt can be poured into molds or other containers. Oak moss extract may be replaced by other fragrance materials, which must be tested for compatibility with paraformaldehyde. Seifen-Oele-Fette-Wachse, Jan. 4. p. 8.

Shoe Polish

The following recipies for wax based shoe polishes are suggested in the March 15 issue of Seifen-Oele-Fette-Wachse (p. 130):

1. Colorless Shoe Cream

	*/
Carnauba wax, bleac	hed 20
Montan wax, double	bleached 38
Ceresine wax	42
2. "Natural" sl	hoe cream
Carnauba wax, chalky	gray 15
Montan wax, crude	33
Paraffin 50/52°	52

Another suggestion for shoe polish calls for one kilo of gum mastic and four kilos of bees wax to be melted and oil of turpentine to be added as required. In an alternative formulation 12 kilos of bleached beeswax and six kilos of distilled water are melted and brought to the boil. One half kilo of potassium carbonate is stirred into this mixture which is brought to the boil again and cooled.

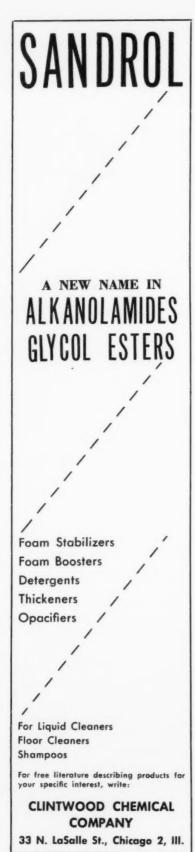
Another formula calls for:

	kilos
Bees wax, yellow	12
Carnauba wax	8
Ceresine wax, yellow	8
Mineral spirits, (150-200 C.)	71.7
Nitrobenzene	0.25
Coaltar dye, oil soluble	0.025

Syndet Sorption on Cotton

Considerable variation in adsorption of surface active agents, particularly of anionics, on cotton has been reported in the literature. These variations appear to be largely attributable to the presence or absence of a natural waxy coating on the cotton fiber. High adsorption values with peaks near critical micelle concentration (cmc) result from surfactant adsorption on the wax surface.

Wax free surfaces did not show the same high maxima nor the same relative magnitude of adsorption. At surfactant cmc the adsorption relationship for waxy cotton (millimoles/g, of cotton) cationic: nonionic: anionic was



roughly 66 to 17 to 74. For dewaxed cotton this relationship was 40 to 10 to nil.

No adsorption of sodium tripolyphosphate occurs on either waxy or wax free cotton. Addition of polyphosphate reportedly decreased the adsorption of several anionic surfactants.

At concentrations greater than cmc and at sufficiently high solution temperature, anionic surface active agents can solubilize cotton wax, leaving a less waxy substrate upon which adsorption is then reduced. These findings explain some of the discrepancies reported in the literature.

"Effect of Cotton Substrate Characteristics upon Surfactant Adsorption," by M. E. Ginn, F. B. Kinney, and J. C. Harris, Monsanto Chemical Co., Research Department, Dayton, O., J.A.O.C.S., March 1961, pp. 138-143.

Revised Colton Brochure

A newly revised eight-page, three color, fold-out brochure describing the complete line of Colton and Colton-Hope filling machines for all types of liquids, creams, pastes, and chemical specialties is now available from Arthur Colton Co., 3400 E. Lafayette, Detroit 7, Mich.

One page of the brochure has a filling machine data table that aids in the selection of the proper machine for specified materials and filling rates.

New Ross Mixers

A new series of double planetary changeable can mixers in eight, 12, and 20 gallon sizes has been introduced recently by Charles Ross & Son Co., 148 Classon Avenue, Brooklyn 5, N.Y. The mixers feature dispersion type stirrers and a simplified hydraulic lowering and raising device, are compact and low in overall height.

Standard units come with variable speed motor drive; vacuum covers or jacketed cans are among optional features. Details and literature are available.

New "Shear-Flow" Mixer

Gabb Special Products, Inc., Windsor Locks, Conn., recently introduced a new "Shear-Flow" continuous mixer, specifically designed to provide high shear action in continuous mix operations, with any liquid that can be pumped.

A relatively small mixing head is enclosed within a sealed chamber and an outlet for the finished mixture. Being a completely sealed unit, "Shear-Flow" is said to eliminate the possibility of air entrainment and is designed for use on pressure systems, inversion applications, introduction of gases to liquids. It enables inflammable materials to be used with safety. Compact and self-contained, the unit is claimed to conserve space, eliminate large mixing and paddle tanks; be suitable for systems requiring jacketed heating or cooling.

The RL Hi-Shear head can be powered with motors ranging from one to 10 horsepower, providing a complete recirculation, blending, homogenizing, emulsifying or dispersing. More than one shear-flow unit can be installed in series to accommodate exceptional process requirements.





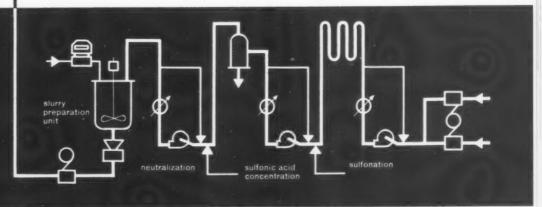
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new patents

Listed below are brief abstracts of recently issued patents. Complete copies may be obtained from the publisher of this magazine:—Mac-Nair-Dorland Co., 254 W. 31st Street, New York 1, N. Y. Remit 50¢ for each copy. For orders received from outside of the United States send \$1.00 per copy.

No. 2,975,139. Laundering Method and Compostion Thereof, patented by Hugo J. Kauffmann and Alfred P. Mentecki, Buffalo, Samuel S. Naistat, Snyder, and Hugo J. Wehrfritz, Lancaster, N. Y., assignors to Food Machinery and Chemical Corp., San Jose, Calif. Described is a stable dry-mixed detergent composition comprising, an alkyl aryl sulfonate synthetic detergent, a water-soluble inorganic copper salt, wherein all the components of said composition are admixed and in intimate contact with each other, the perborate being present in an amount sufficient to produce an active oxygen content in the range of 0.8% to 2.4% by weight, and the inorganic copper salt being present in an amount sufficient to produce a copper content within the range of 0.04% to 0.4% by weight and being substantially free of surface coatings.

No. 2,976,248. Bottle Washing Composition and Method, patented by Joseph V. Otrhalek, Dearborn, Mich., assignor to Wyandotte Chemicals Corp., Wyandotte, Mich. Claimed is a composition for washing glassware consisting essentially of a mixture of about 70 to 99 weight percent of an alkaline detergent selected from the group consisting of sodium hydroxide, potassium hydroxide and mixtures thereof, about 0.5 to 29 weight percent of a hydroxy carboxylic acid sequestrant and about 0.5 to 20 weight percent of a corrosion-inhibiting agent, said corrosion inhibiting agent being a member selected from the group consisting of sodium lignosulfonate, potassium lignosulfonate and mixtures thereof.

No. 2,977,278. Anionic Carrier Iodine Compositions for Controlling Microorganisms, patented by Morris V. Shelanski, Bridgeport, Pa., and Murray W. Winicov, Flushing, N. Y., assignors to West Laboratories, Inc., Long Island City, N. Y. This patent covers a composition for the control of microorganisms consisting essentially of a complex of iodine with an

anionic surface active agent selected from the group consisting of alkyl phenyl sulfonates and alkyl naphthyl sulfonates, wherein the alkyl group has from 3 to 30 carbon atoms, said complex containing 0.1 to 30% of iodine based upon the weight of said surface active agent.

No. 2,974,520. Detergometer, patented by William B. Lane, Los Gatos, Sanford Baum, San Francisco, Lloyd J. Graham, Berkeley, Ross K. Fuller, Campbell, James L. Mackin, Mountain View, John R. Lai, San Francisco, Paul E. Zigman, San Mateo, and Wesley E. Shelberg, Piedmont, Calif., assignors to the United States of America as represented by the Secretary of the Navy. Described is a detergometer for scientifically testing the effectiveness of various detergents, comprising a detergent solution, a mixing system including a bell ended tank for holding a solution charge and provided with a two way connection at the bottom of said bell and control means for selectively communicating with steam and air sources for mixing and varying the temperature of said charge and draining said tank, a pressure temperature control system including a pump and by pass re-circulating system for selectively mixing air, steam and the solution charge in correct proportions and at a selected temperature and pressure, a spray chamber, a spray nozzle and a horizontal sample platform housed within said chamber, said spray nozzle connected to said control system and positioned for directing the spray solution stream vertically downward and normal to said horizontal sample platform, said platform being mounted on a vertical shaft and rotatively supported in the follower of a traverse motion, whereby the platform face is reciprocated across said spray stream, a pinion keyed to said vertical shaft and in driving contact with a rack mounted parallel with said traverse for rotating said platform as it reciprocates across said spray stream, and means for regulating the rate of travel and rotation of said sample platform.

No. 2,977,280. Process for Treating Foot Rot With Quaternary Ammonium Compounds, patented by Bruce Adam Forsyth, Mitcham, Victoria, and Alan Stokoe Taylor, Croydon, Victoria, Australia, assignors to Imperial Chemical Industries of Australia and New Zealand, Ltd., Melbourne, Australia. The patent teaches a process for the treatment of domestic animals infected with foot rot disease which comprises applying to the said animals an effective amount of a quaternary ammonium cationic detergent and antiseptic as the essential agent for treating said disease, said agent being used in the form of an alcohol solution wherein for every 100 parts by weight of solution, there is present between 10 parts by weight and 30 parts by weight of said agent.

No. 2,975, 141. Preparation of Sulfo Detergents, patented by Vsevolod Blinoff, Arnold, and George Braude, Riviera Beach, Md., assignors to American Alcolac Corp., Baltimore. The process is disclosed of manufacturing detergents by neutralizing organic sulfoxy acids while avoiding decomposition which comprises forming a mixture of

- (1) an organic sulfoxy acid selected from the group consisting of alkyl sulfuric acid esters having at least 8 carbon atoms in the alkyl group, and alkyl-aryl sulfonic acids;
- (2) comminuted alkaline reacting material having a cation selected from the group consisting of ammonia, alkali metal, and alkaline earth metal; and
- (3) pulverulent solid carbon dioxide and subjecting the mixture to mixing to neutralize the organic sulfoxy acid and form a dry, pulverulent detergent, the total amount of solid carbon dioxide introduced into the mixture during the process being sufficient to maintain the temperature of the mixture below and about 20° C. and thereby prevent hydrolysis and decomposition of the organic material.

No. 2,976,210. Pest Control Compositions Containing Oxidized Polyethylene Wax, patented by John N. Cosby, Morristown, and Merrill M. Darley, Basking Ridge, N. J., assignors to Allied Chemical Corp., New York. Claimed under this patent is an aqueous pest control dispersion comprising (1) a pest control agent, (2) between about 0.1 pound and 1.0 pound per 100 gallons of dispersion of a readily emulsifiable oxidized waxy polymer of ethylene characterized by recurring —CH.— groups, which is the reaction product of a waxy ethylene polymer and molecular oxygen, containing between about 3% and about 9% oxygen, and having an average molecular weight between about 600 and about 5.000, a melting point between about 90° C. and, about 110° C., an acid number of at least about 10 but not more than about 50 and a ratio of saponification number to acid number between about 1 and about 1.5; (3) an emulsifying agent and (4) water, said dispersion having the property when applied to weather-exposed surfaces of providing a water-resistant solid coating having prolonged pest-control activity.

No. 2,971,881. Insecticidal Repellent, patented by Willis Nels Bruce, Champaign, Ill., assignor to Lee Ratner, Miami Beach, Fla. This patent covers an insecticidal repellent comprising a combination of from about 1% to about 98% by weight of din-butyl succinate and from about 2% to about 99% by weight of a thiocyanate insecticide selected from the group consisting of iso-bornyl thiocyanate and B-butoxy, B-thiocyano diethyl ether.

(From Page 205)

offs frequently may be helpful.

mercoid magnetic switch is used for cutoff where vibration is no problem and where it is not necessary to change cutoff point frequently. From one to four of these switches may be mounted in one dial head. These switches can activate relays with contacts capable of handling 15 amps at 220 volts. They are used for single cutoff only, but two such switches, of course, can be used to provide single and final cutoff for dribble effect. Reproduceability is within two divisions.

For installations involving some vibration, cutoffs employing a photo-cell are often specified. An adjustable photo-cell is applied where frequent changes in weighing are expected. In the Fairbanks-Morse scale only one of these adjustable photo-cells is available but this can be made to offer both single cutoff, and cutoff with dribble, depending on the arrangement of the interceptors.

The use of stationary photocells with adjustable interceptors offers a system with a wider variety of functions. There is room to mount two stationary photo-cells in the Fairbanks-Morse dial. Each

cell may be used to operate one or two relays allowing for one or two cutoffs, each with dribble and final cutoff, or from one to four single cutoffs. The single cutoff with dribble is used when filling containers or feeding predetermined amounts of material. It is desired to have a rapid flow of material until the predetermined amount is almost reached and then slow down the flow in order to have better control until the exact amount desired is reached.

To complete our discussion of cutoff types we should mention that a reed switch can be used. The adjustable reed switch operates the same way as the adjustable photocell but with somewhat lower sensitivity. The switch is simply moved to the cutoff point. When the indicator carrying a magnet reaches the switch, it causes a contact to be made or broken and the circuit is completed or shut off.



High speed coding and printing without liquid inks is possible with the new "Reko Model 100 Series" coders and printers, according to a recent announcement by Thomas Engineering Co., Skokie, Ill.

The device uses solid ink in roll form, supplied by S. C. Johnson & Sons, Inc., Racine, Wis., which makes the new inking method possible. This microporous plastic roller replaces fluid inks, solvents, fountains, and the maintenance connected with it. Claimed not to drip, evaporate, or gum up, the roller is said to be replaceable in seconds, when exhausted.

The machine is 7 x 43/8 x 3 inches in size. Printing head diameters of six, eight, and 10 inches are available. The coder is designed to attach to packaging machines or powered conveyors and to synchronize with the action of the parent machines. One roll of "Porelon" is claimed to yield up to 250,000 quick-drying impressions.



- peanut butter
- detergents
- molasses
- waxes • syrup
- fatty acids
- insecticides
- creams
- jelly
- bleaches
- doughs
- inks
- cosmetics

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- Hydro-floric acid
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- drugs
- alkaline brines
- resins
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- petroleum jelly
- almost anything
- that isn't solid

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Detergent Consistency

(From Page 201)

very high mixing resistance values, additional weights can be attached to keep the measurements within the range of the indicator and recorder. At the 1:5 setting one kilogram equals 200 units on the recorder; at the 1:1 ratio one kilo is represented by 1000 units. Fig. 2a shows the entire installation, incorporating our original equipment, which we used in 1958.

In subsequent work we had at our disposal a Plastograph model (PN) still featuring a delta type mixer, but with steplessly adjustable speeds ranging from 10 to 140 rpm. By setting the instrument to a certain number of revolutions, foam formation can be eliminated or at least minimized to the point where it does not affect measuring

This wide range of adjustable operating speeds effectively meets some problems created by strong resistance to mixing action encountered at low temperatures and especially in the critical temperature ranges where plasticity shows a sudden drop. However, even this arrangement did not prove quite adequate, since the indicator movements exceeded the scale's capacity and some values obtained had to be interpolated. Fig. 3a illustrates the PN system without electric temperature gauges. The dissambled delta mixer showing rotors and trough after use, appears in Fig. 3b.

To eliminate some of the shortcomings of our instrument we used a new mixing device with sigma type blades, similar to those used in the plastics industry. Results obtained with this variation of the Plastograph will be discussed at a later date.

Some of the mixer arms used in our experiments, namely (left to right) sigma blade, delta type, and roller, are shown in Fig. 4a. The Plastograph with the delta type mixer, mixer housing and funnel shaped feed shute appears once



... small size, tremendous output

This screening machine is unique in that its gyratory action is adjustable both in speed and radius of gyration. When the optimum relationship between these two factors is reached through-

puts are multiplied. In four square feet of floor space, therefore, the Vorti-Siv gives production that would require many times that area in

any other type of screening machine. The unit has casters, making it easily movable from one location to another. The Vorti-Siv processes powders,

liquids and slurries in meshes from 4 to 400 which can be changed quickly. The screen is practically non-blinding and cleanup takes only a few minutes.

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proved equipment for PEST CONTROL and SANITATION Make the most of your time and chemicals with service-proved equipment from Spraying Systems. TRIGGER TECTOR SHUT-OFF VALVES Use with TeeJet interchangeable orifice tips, indexing MulTeeJet tips or adjustable ConeJet tips.

tips.

Drip-free operation since shut-off needle extends through extension to orifice tip.

Insectolet

SPRAY GUNS

SPRAYERS



For permanent installation in plants. Connect to air line to operate. Plastic bottle hold schemical. Stainless steel nozzle in two or four tip designs. Single unit covers thousands of cubic feet



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3217 Randolph Street Bellwood, Illinois more in Fig. 4b. For comparison, the sigma blade mixer head is shown in left foreground, roller type mixer with small volume trough on the right.

(To be continued)

New Film on Fly Control

"Ortho Fly Killer D" is the star of an agricultural newsreel recently filmed for the Ortho Division of California Chemical Co., Richmond 4, Calif. Much of the motion picture was taken in the outdoor laboratories of Dr. I. Barry Tarshis, associate professor of entomology at UCLA. Highlight of the film is the kill of almost 250,000 flies in an 18 hour period at a local dairy. This kill, according to the movie, was accomplished with two teaspoonfuls of the "Ortho Fly Killer D."

The film shows the product in use as wet and dry bait ingredient, as fog and space spray in a variety of locales including dog kennels, beverage and food plants.

High Frequency vs. Insects

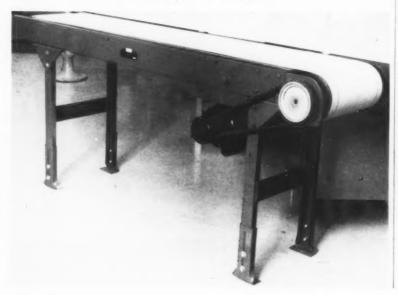
Some species of insects in stored grain can be killed by a few seconds' exposure to high frequency electric fields according to recent findings by the U.S. Department of Agriculture. In studies conducted by USDA's Agricultural Marketing Service at Manhattan, Kans., and the Agricultural Research Service at Lincoln, Neb., insects in stored wheat and wheat shorts were exposed to high frequency electrical treatments of different frequencies and field intensities. Their effect on mortality and reproduction of the insects was determined.

Details of these experiments are given in a 52 page report with 25 tables, 31 charts, and four half-tones. Free copies of this report entitled "Effects of High Frequency Fields on Certain Species of Stored Grain Insects" (Marketing Research Report No. 455) may be obtained from the Office of Information, USDA, Washington 25, D. C.

Variable Speed Conveyor

Island Equipment Corp., Miami, Fla., recently announced an addition to its "Ultimate Light Duty Slide Bed Belt Conveyor," available with fixed speeds of 25, 37½ and 50 feet per minute. The new unit is available with speed ranges of from 18 to 45 feet per

minute or from 25 to 62½ feet per minute. It has its reduction gears mounted inside the drive pulley and permanently sealed, thus reducing maintenance, the company states. The only lubrication points are oil cups for motor bearings and grease fitting for the Hi-Lo pulley.



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The new compact Moisture Teller No. 277 reaches a preset drying temperature faster than any similar unit available today. High static pressure from a high speed blower removes free moisture in any material—solid, granular, liquid or semi-liquid. Produces an absolute analysis. No calibration required. A real aid to quality and cost control in processing foodstuffs, fibres, chemicals, soaps and many other materials.



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sent on request. Ask for bulletin SL-1. Describes complete line of moisture tellers, drying ovens, speed desiccators, etc.

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New Graco Steel Pumps

Gray Co., Minneapolis, Minn., recently announced a new line of air operated stainless steel pumps, said to maintain purity of products, be corrosion resistant and easy to clean and maintain.

Designed for high volume

transfer of chemicals, cosmetics, acids, foods, dyes, drugs and other hard to handle materials, the new "Graco" stainless steel pump line is available in a wide range of industrial sizes. These include the lightweight, double-acting "1-1 Fast-Flo" for dispensing high vol-

ume fluid directly from drums or open containers and the compact "5-1 Monark," for high volume continuous-duty pumping of light or heavy fluids. The "Monark," it is claimed, can process anything from isopropyl alcohol to peanut butter. The "Standard 2-1" direct-from-drum pump and the "2-1" ink pump styles, previously marketed by the company are also included in the line.

Whiter Quaternaries

A quaternary ammonium chloride of improved color characteristics has just been announced by Armour Industrical Chemical Co., 110 North Wacker Drive, Chicago 6. The material is intended for incorporation in laundry rinses and industrial fabric softeners.

The whiter "Arquad 2HT" is used in chemical specialties which fluff fabrics, speed drying, ease ironing, reduce wrinkling, and eliminate uncomfortable garment cling, according to Armour.



Manufacturers of filling, labeling and conveying machinery. 191 Berry Street, Brooklyn 11, N.Y. EVergreen 7-3936

book reviews

Alcohol Bulk Storage Data

A new eight page guide to bulk storage of specially denatured alcohol and proprietary solvents has just become available from U. S. Industrial Chemicals Co., 99 Park Avenue, New York 16.

Federal government regulations governing storage of industrial alcohols are covered. In addition to these rules, requirements of insurance underwriters and local laws and fire codes must be met.

The guide supplies data on suitable tank design, size and location; on auxiliary equipment such as pumps, valves, pipes and fittings; and contains schematic drawings of above and below ground storage tanks and typical gauging wells.

Equipment Leasing Study

A fourth and revised edition of "The Pros and Cons of Equipment Leasing for Smaller Manufacturers, Department Stores and Supermarkets" has just become available from the Foundation for Management Research, 121 West Adams St., Chicago 3.

The 24-page booklet includes tables and charts analyzing comparative costs of leasing, outright cash buying, purchase by conditional sales contract, and purchase through bank financing. Specific situations where it may be advantageous or disadvantageous to lease equipment are analyzed.

Pertinent Internal Revenue rulings and other considerations pertaining to equipment leasing are covered.

AHA Certified List

The American Hotel Association has just published its 1961 Certified Products List. The first 19 pages of the 32 page booklet are devoted to cleaning and maintenance products, which are divided into 18 different groups: abrasive cleaners, bowl and por-

celain cleaners, carpet and rug cleaners, dishwashing compounds—machine and manual, floor cleaners, floor polishes, furniture polishes, general purpose cleaners, glass cleaners, metal polishes, mop treating compounds, mothproofing compounds, paints, silver polishes, upholstery cleaners, wax strippers, and wood floor finishes.

Products in each group are listed alphabetically by trade names with their manufacturers. An alphabetic list of manufacturers and addresses is appended.

All products in each of the above categories have been tested within the past six months by Foster D. Snell, Inc., New York, official testing laboratory of AHA.

Copies are available to nonmembers at 25 cents each from AHA headquarters at 221 West 57th Street, New York 19.

Acid Inhibitor Data

"O'B-Hibit" dry powder inhibitor and its applications in industrial metal cleaning and processing operations are described in a new brochure issued by O'Brien Industries, Inc., 95 Dorsa Avenue, Livingston, N.J.

In addition to dispersing and wetting agents, the inhibitor contains a film former claimed to provide protection against acid attack without impairing efficiency of acid action.

Suggested for use with sulfamic acid, sodium acid sulfate, phosphoric, oxalic, tartaric, citric, sulfuric and formic acids, the product has found successful application in the following fields: cooling water treatment, milk stone removal in dairies, special floor cleaning preparations, brewery cleaners, and coffee urn cleaners.

Other potential uses, and detailed information on modes of application and dilutions are covered in the brochure.

Floor Waxing Study

"The Value of Waxing Resilient Smooth Surface Floor Coverings" is the title of a 20 page booklet, published last month by the Chemical Specialties Manufacturers Association, 50 East 41st Street, New York 17.

The booklet is the outcome of a special study sponsored by the Waxes and Floor Finishes Division of CSMA. Many of the tests involved are illustrated, some in color.

Cost of the publication is 20 cents per copy for members, 25 cents for non-members; minimum order \$1.00.

Alcolac Surfactants Data

Copies of a 28 page booklet entitled "Cosmetic and Pharmaceutical Surfactants" have just become available from American Alcolac Corp., 1440 Fairfield Road, Baltimore.

Included are data on physical and chemical properties of anionic, nonionic, and cationic surface active agents. Fatty alcohol sulfates, ethoxylates, and alkyl quaternary ammonium salts are discussed.

Formulations are suggested for various types of shampoos, such as liquid clear, lotion, cream, acid and gel shampoos. A new shampoo and bubble bath thickener and a surfactant designed for dentifrices are covered.

National Aniline Issues List

"Glossary of National Organic Chemicals" is the title of an 11 page booklet, just published by National Aniline Division, Allied Chemical Corp., 40 Rector Street, New York 6. The glossary lists 483 organic chemicals, each with National Aniline's code number, trade name, Chemical Abstracts' designation, and common name if any. The full line of "Nacconol" surfactants is included in the list.

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GLYCOSPERSE O-20	POE (20) Sorbitan Monooleate	
GLYCOSPERSE TO-20	POE (20) Sorbitan Trioleate	
GLYCOSPERSE O-5	POE (5) Sorbitan Monooleate	
GLYCOSPERSE SA-8	POE (8) Stearate	
GLYCOSPERSE TAO-16	POE (16) Ester of Mixed Resin and Fatty Acids	
GLYCOSPERSE LA-4	POE (4) Ether of Lauryl Alcohol	
GLYCOSPERSE LA-23	POE (23) Ether of Lauryl Alcohol	

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Literature and application information on request



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Acid Resistant Pail

A new chemically resistant three gallon hard rubber pail has been introduced recently by Stokes Molded Products, Trenton, N. J. Designed for the chemical process industries the "Stokolite" pail is made of "Stokolite" compound with virgin rubber base. It resists abrasion, heat and the corrosive action of many chemicals, will not crack or chip, according to the manufacturer.

The pail features a stainless steel bail type handle which is molded into the pail and moves freely on molded bearings, a safety grip at the bottom for safe pouring, and graduated markings on the inside.

Terriss Bean Extractor

Terriss-Consolidated Industries, New York, is marketing a portable flavor bean extractor of polished stainless steel with welded construction, equipped with a stainless ½ h.p. pump. The unit's dimensions are a 38 by 48 inch base, mounted on five inch casters, with an overall height of 53 inches. Primary operating features consist of a 16 by 34 inch extractor tank and a jacketed 100 gallon circulating solvent heating tank.

Operating safety is said to be assured by a pressure relief valve, explosion proof motor, sight flow indicator, automatic temperature controller, indicating regulator, explosion proof immersion heaters, and pump timer for automatic recycling.

Portable, stainless steel, flavor bean extractor from Terriss-Consolidated.



Versatile Emhart Plastic Bottle Unscrambler

A VARIABLE speed unit for unscrambling empty plastic bottles and aligning them for delivery to fillers was unveiled recently by Emhart Manufacturing Co., Portland Division, Portland, Conn.

Outstanding feature claimed for this machine is adjustability to speeds ranging from 225 containers per minute down to 50 containers per minute. At slow speeds it can be integrated into existing lines, many of which operate in the 50 to 100 containers per minute range. At the same time it offers scope for accelerated production rates.

The new unscrambler basically consists of (1) a hopper into which the empty bottles may be dumped at random; (2) a multilevel vibrating bowl that orients the bottles so the bottoms face downward; and (3) an upending device that stands the bottles upright in single file.

Containers of up to eight ounces in capacity can be handled by the machine, which is coded Type 380-385, The unscrambler processes bottles of widely varying dimensions. They may measure up to six inches in height and up to 27% inches across the face.

The unit can be used to run reverse tapers. Boston Rounds, Taper Rounds, and tubes. Change-over involves modification of the chute through which the bottles enter the upending station. In certain instances it may also be necessary to modify the two small "discriminator" plates in the vibrating unscrambling bowl. Both adjustments are said to be simple.

The first installation of this unscrambler was made a few months ago at the plant of S. C. Johnson & Son, Inc., Racine, Wis. Johnson is using it successfully to unscramble and align for filling the two-ounce container produced for its new liquid shoe polish.

Before installation of the unscrambler, the job of aligning the bottles for filling was done by hand by two operators. Only one operator is required now, primarily for loading the hopper.

Baton Rouge, La., oxo alcohol facilities from an annual capacity of 90,000,000 pounds to 120,000,000 pounds. This expansion is scheduled for completion in the first quarter of 1962.

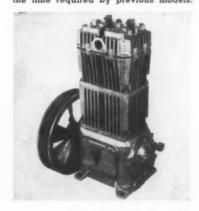
Anhydrous Amphoterics

A series of new amphoteric anhydrous acids was introduced recently by Miranol Chemical Co., 275 Coit Street, Irvington, N. J. Intended for incorporation into dry powder alkali mixtures where dispersion of aqueous surface active agents may present a problem, these new materials are the 100 per cent active anhydrous portion of amphoteric surfactants before neutralization.

Amphoteric anhydrous acids of this series may be poured directly into the powder mix and incorporated into the mixture in tumblers, according to Miranol. No special equipment is needed. Added to alkali powder charges at the rate of one half to three quarters of one per cent they will not discolor caustic soda, the manufacturer claims. Said to be noncorrosive, these acids are "fairly viscous" when cold but flow easily when warm. They may be neutralized to form potassium, sodium, ammonium and amine salts.

Suggested applications include bottle washing and dish washing compounds, heavy duty powdered cleaners, etc.

A new compressor, series 490, has been added to the line manufactured by Corken's, Inc., Oklahoma City, Okla. It is said to have over twice the capacity and can transfer liquid or vapor in half the time required by previous models.



New Gottscho Coder

"311 Rolacoder," a new friction-drive, code-marking attachment that makes a single impression anywhere within 15 inches of the leading edge on shipping cases with sides over 24 inches long, was announced recently by Adolph Gottscho, Inc., Hillside, N. J. It also operates on cases with sides as short as 10 inches, the company reports.

The new unit features a double starting arm that prevents "overtravel" and eliminates the possibility of flat spots developing



on the bearings. This enables the unit to recycle with less space and time between cases than are required by similar friction markers, the company claims.

C₁₆ Alcohol by Oxo Process

Hexadecyl alcohol derived from petroleum by the oxo process will soon be available in commercial quantities from Enjay Chemical Co., Division of Humble Oil & Refining Co., New York. Detergent and toiletries manufacturers are expected to be among major industrial consumers of the synthetic C₁₆ alcohol.

At the same time it was announced that Humble will manufacture more than 15 million pounds of 2-ethyl hexanol annually, which will be used largely in plasticizers for vinyl resins.

These developments result from an expansion of the firm's



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SOAP and CHEMICAL SPECIALTIES

NEWS

Simoniz Marketing Head

Edward J. Fredericks has been appointed to the newly created position of marketing for



Edward Fredericks

Simoniz Co., Chicago, it was announced recently. He is responsible for the overall sales, merchandising, and marketing programs at Simoniz.

Prior to joining the firm, Mr. Fredericks was vice-president of sales and marketing for Rubbermaid, Inc., Wooster, O.

Peter Dirr Dies

Peter A. Dirr, 72 who retired as vice-president of Charles L. Huisking & Co., New York, in 1955, died April 19th at his home, 89-19 Lefferts Boulevard, Richmond Hill, Queens.

Ewell P & G Director

James M. Ewell, since 1958 vice-president of manufacturing and employee relations for Procter & Gamble Co., Cincinnati, was recently elected to the board of directors of P & G. He fills the vacancy created by the retirement of Harvey C. Knowles, former director and vice-president of purchases for the company.

Mr. Ewell joined Procter & Gamble in 1937 and gained manufacturing experience at several plants in the U. S. and England. He was named general production superintendent for all U. S. factories in 1949, and elected vice-president of manufacturing in 1955.

Wildroot Plant to Close

F. L. Stephens, director of manufacturing, toilet articles division, Colgate-Palmolive Co., New York, recently announced the company's "Wildroot" plant, in Buffalo, N. Y., will close down on July 14. "Rising freight and reshipping costs, plus duplication of operations, were responsible for the decision," Mr. Stephens said. Wildroot's Buffalo production will be integrated into existing Colgate facilities.

The plant's 90 employees were assured of accrued sick leave and vacation time, severance pay based on entire length of service at the plant, in addition to payment by the company of the September, 1961 annual premium for all members of the company's pension plan. Total benefits to employees are expected to be over a half-million dollars.

E. J. Pempsel, former treasurer of the Wildroot Co., will maintain an office at the plant to provide job relocation service, and to assist with severance pay details. Following removal of machinery and materials, after July 14, the plant buildings and facilities will be put up for sale.

Magnus Appoints Four

Magnus, Mabee & Reynard, Inc., New York essential oil firm, recently announced the following staff appointments: Dominick E. Bellavigna, director of production; Donald L. Cumming, director of technical correspondence; Gosta Hedstrom, director of analytical control and Walter J. Senyszn, director of perfume research.

Scollay L&F Sales Manager

Jack Scollay has been appointed field sales manager of the Lehn & Fink division of Lehn &



Jack Scollay

Fink Products Corp., New York, it was announced recently by Roger M. Kirk, Jr., manager of the division.

Mr. Scollay directs field sales for the division's proprietary products to the food and drug trade. He was formerly marketing division manager for the American Sugar Refining Co., New York, for two years, and for seven years prior to that, he was a sales manager in the toilet goods division of the Procter & Gamble Distributing Co., Cincinnati.

Rochester Germicide Unit

A new 5000 square foot, office-warehouse for the St. Louis branch of Rochester (N. Y.) Germicide, Inc., was recently completed at 8678 Olive St. road.

The building, with 800 square feet of office space, has a loading dock which can handle two trucks simultaneously, and another which is serviced by a railroad spur.

The 73 year old firm, which manufactures and distributes soaps, cleaners, other floor maintenance products, and specialized sanita-

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Now you can make longer-wearing industrial floor polishes that give a hard, dry-bright shine with improved antislip properties—by incorporating A-C Polyethylene in your formulations.

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BASIC TO AMERICA'S PROGRESS tion chemicals for industry, hospitals and other institutions, moved its branch from rented quarters at 965 Kingsland Ave. Rochester Germicide has had a branch office in the St. Louis area since 1946. The St. Louis branch serves a five state area, and maintains offices in Kansas City, Mo., and Des Moines, Iowa.

Johnson Increases Efforts

S. C. Johnson & Son, Inc., Racine, Wis., recently announced plans to increase research and marketing efforts in support of the company's line of industrial coatings.

As an initial step, the 17 coatings produced by the company have been aligned into four major chemical groups. They are: "Perma-Cote," for clear solvent base waxes or resins; "Bright Plate," resin emulsions; "Wax Plate," wax emulsions, and "Solve Cote," solvent base waxes. Serving manufacturers with the coating line will be the firm's nationwide industrial products sales force.

Toilet Goods Sales Up

Total retail sales of perfumes, cosmetics and toilet preparations (excluding toilet soaps), for 1960 have been estimated by the Toilet Goods Association, Inc., New York, at \$1,784,000,000, an increase of approximately seven and one quarter per cent over the previous record set in 1959.

Dentifrice sales increased approximately three and three tenths per cent, and shaving creams increased more than eight and one-half per cent. Fragrance products, especially colognes and toilet waters showed substantial increases, traceable in part to the increased popularity of aerosol packages, the Association reported.

It was noted that sales through food stores and house to house sales people continued to gain at the expense of sales through drug stores and more particularly through department stores and specialty shops.

Carter Retiring-Honored

Arthur H. Carter has been appointed an Honorary Life Member of the Canadian Manufactur-



Arthur H. Carter

ers of Chemical Specialties Association, on his retirement from active business as vice-president of John Struthers & Co., Ltd., Montreal.

Mr. Carter, one of the founders of the Association, has been actively engaged in its affairs as a vice-president and a member of the board of directors. He has successively been chairman of the Pesticides Division and co-chairman of the Aerosols Division of the Association.

He has had over 50 years' experience in selling and was geneneral sales manager of the Agricultural Chemicals division of Canadian Industries, Ltd., for 15 years. Mr. Carter joined the Sherwin-Williams Co., of Canada, Ltd., in 1945 as general manager, and established the Green Cross Products Division of that organization. He was also one of the founders and a past-president of the Canadian Agricultural Association.

New P&G Research Center

Procter & Gamble Co., Cincinnati, recently announced plans for the construction of a research and technical services center in Brussels, Belgium, to service the firm's expanding activities in continental Europe. Construction will begin in the near future on a 25 acre site adjoining the site of the

recent Brussels World's Fair, the company states. The first unit of the research center is expected to be completed during the summer of 1962.

The Brussels center will be operated as a new Belgian subsidiary, to be incorporated as Procter & Gamble European Technical Center, S.A. It will provide research, engineering and advisory services to other P&G subsidiaries in such fields as chemical research, product development, market research and manufacturing.

Lever University Gift

Lever Brothers Co., New York, recently donated \$1,500 to the Rutgers Newark (N. J.) Extension Center. The money will be used to purchase equipment for the Rutgers perfume laboratory to be housed in the new Science Building being built on the Newark campus of the State University.

The presentation was made by Dr. Willard M. Bright, research and development vice-president of Lever Brothers, to Dr. Mason W. Gross, president of Rutgers University. Dr. Bright is in charge of Lever's research and development laboratories at Edgewater, N. J.

Lesch Elected CP Chairman

George H. Lesch, president and chief executive officer of Colgate-Palmolive Co., New York, was elected chairman of the board and chairman of the executive committee, at a recent meeting of the company's board. He succeeds Edward H. Little, who retired from those posts. Mr. Lesch also continues in his former positions.

At the company's annual meeting, president Lesch stated that first quarter sales for 1961 had set a record for that period. Sales totaled \$149,583,000, for the quarter, up from \$139,594,000 in the same period in 1960. Earnings rose to \$5,057,000, or 60 cents a share, from \$4,219,000, or 50 cents a share, in the first quarter of 1960.

C TO RICA'S GRESS

WHAT'S NEWS IN ENJAY CHEMICALS FOR COSMETICS



Enjay offers all 3 for the cosmetics industry...

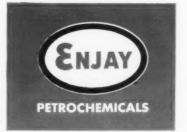
You'll find Enjay a convenient source for your chemical needs in the production of cosmetics. Enjay offers high purity ethyl and isopropyl alcohol in addition to ethyl acetate in tank car or tank truck quantities, immediately available from convenient storage centers. Manufacturers of perfumes, colognes, aerosols, and after shave lotions know they can call on the experience of Enjay research to recommend chemical raw materials that will provide pleasing odors in each type of cosmetic.

For technical assistance with your blending or compounding problems be sure to call on the research and technical facilities of the Enjay laboratories. For specifications and typical properties of these Enjay products, write to 15 West 51st Street, New York 19, New York.

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New CSMA Pesticide Laws Volume

NEW edition of the Compi-A lation of Economic Poisons (Pesticides) Laws has been announced by the Chemical Specialties Manufacturers Association. This completely new edition of both state and Federal laws and regulations has been in preparation for over a year under the supervision of John D. Conner and Robert L. Ackerly, counsel for the Association. Preparation and production were handled by the CSMA staff.

The new volume is printed on bond paper, 81/2 x 11, and bound in a three-ring, heavy duty leatherette hinged binder and is equipped with subject index tab dividers. It gives in full all economic poison laws having to do with pesticides, plus regulations covering all U.S. and state statutes. It also contains a copy of the model economic poisons law as well as related laws directly applicable to poisons and pesticides. It contains summary tables and the names and

addresses of state and Federal enforcement officials. The new book brings together in one volume all the laws and regulations of interest to manufacturers of insecticides, fungicides, rodenticides, disinfectants, sanitizers and numerous related products.

The new edition approximates 500 pages and is designed to replace the old smaller volume put out by CSMA some years ago which is now obsolete. From time to time, new additions and revisions to laws and regulations will be issued and offered to all who purchase the original volume. These additions will be issued yearly if the number of changes justify. The new volume is priced at \$48.00 postpaid in the U. S. and Canada with additional postage elsewhere. It is available at this price to non-members of CSMA. Further details regarding the new edition may be obtained from A. A. Mulliken, secretary of CSMA, 50 E. 41 St., New York, 17, N. Y.

Research Corp., Anaheim, Calif., will now be stationed in New York.

He joined the California research group in 1955, where his duties included major responsibility for government contract research programs.

USDA Registers Insecticide

Registration by the U.S. Department of Agriculture of "butonate," a new insecticide of low mammalian toxicity, was announced recently by the Wisconsin Alumni Research Foundation, Madison, Wis. "Butonate," developed at the University of Wisconsin by Drs. John E. Casida and B. W. Arthur, may be used in aerosols and in contact and residual sprays against household and industrial insects such as flies, gnats, mosquitoes, roaches and silverfish. In addition, a number of other promising

applications for "butonate" are being investigated in the field, particularly for the control of insects affecting livestock.

A license to manufacture and distribute "butonate" has been granted Prentiss Drug and Chemical Co., New York. Commercial scale production of "butonate" is now under way at Prentiss' Newark, N. J., plant. The insecticide will be made available by the licensee to formulators and pest control operators as well as to research agencies interested in investigating additional insecticidal uses of the compound.

The chemical can be used with practically all of the commonly used organic solvents, and may be formulated as an oil spray, an emulsion or a wettable powder. Its light odor can be masked by various aromatic agents.

Hagan Names Hronas

John J. Hronas has been named group leader in the chemical research and development department of Hagan Chemicals & Controls, Inc., Pittsburgh, it was announced recently.

Mr. Hronas, who joined Hagan in 1947 as a chemical analyst, is in charge of the development of chemical products which are sold through the jobber sales division. In addition to his new duties, he will continue as packaging coordinator for the chemical division.





U. S. Borax Ups McCloskey

A. L. McCloskey has been appointed to the newly created position of associate director of market development and technical service of United States Borax & Chemical Corp., New York, it was announced recently. Dr. McCloskey, formerly associate director of chemical research of U.S. Borax

A. L. McCloskey



MAY, 1961



Not quite this simple, is it?

There is one ingredient, though—just one—that helps you enhance almost any property you want to enhance in an emulsion floor polish.

That's Durez terpene-phenolic resin.

Nothing else can give a polish so many of the things your customers look for in a polish. Hardness. Gloss. Slip resistance. Water resistance. Good leveling. Shelf stability.

Nothing else can do it so inexpensively. Durez resin is one of the lowest-cost ingredients you can put into a polish. Plenty of polish producers are taking advantage of this fact to stabilize costs and profit—by including a good percentage of Durez resin in their products.

Can we help you do the same? We've made thousands of resin formulations and we keep developing new ones all the time. If you think a Durez resin might help you with a polish problem, why not write us about it?

Making polymer-type polishes? To help you engineer their properties, we offer alkali-soluble rosin-modified polyester resins. We can assist you with typical formulations, test samples, and advice in formulating. Write for information.

DUREZ PLASTICS DIVISION

HOOKER CHEMICAL CORPORATION, 405 WALCK ROAD, NORTH TONAWANDA, N. Y.



Lawrason, Ltd. Expands

Walter J. Evans, president of Lawrason Holdings, Ltd., London, Ont., recently announced the



Walter J. Evans

purchase of the Canadian operations of Eaton Chemical & Dyestuff Co., Detroit, Mich. Eaton manufactures and distributes a wide range of basic and converted chemical compounds and specialties in their Toronto and Windsor plants. The company will continue to operate under the Eaton name, but plans are under way for additional facilities as well as for the expansion of their chemical product line, it was reported.

It was also announced that the firm had contracted to manufacture and sell, in Canada, the "Kelite" line of metal preparation and treatment compounds.

With C-P 40 Years

Walton E. Hayman, manager of the eastern sales region of the household products division of Colgate-Palmolive Co., New York, recently marked his 40th year with the company.

He joined the company in 1921 and was appointed manager of the Philadelphia district in 1927. In 1940 he was named manager of the New York district. In 1956, Mr. Hayman joined the home office sales group as manager of the chain store division. The next year he became manager of the south central region for the household products division's sales organization.

He was named head of the eastern sales region in 1960.

Mr. Hayman supervises the distribution of such products as "Fab", "Ad", "Vel", "Ajax Cleanser", "Cashmere Bouquet" and "Palmolive" soaps, and "Florient" room deodorizer.

Du Pont Textile Softener

"Avitex" Y, a new cationic softener in concentrated liquid form has been introduced by the dyes and chemicals division of E. I. du Pont de Nemours & Co., Wilmington, Del. The new compound is said to be effective on all types of fibers, improving the tear strength, napping properties, and sewing characteristics of treated fabrics. It can be applied alone or with starches, gums, and thermoplastic, thermosetting, or thermoreactive resins.

"Avitex" Y causes only slight changes in the shade of selected vat and fast-to-light direct dyes, and does not result in any great reduction in lightfastness, the company states. Fabrics finished with the product are said to have good resistance to discoloration and odor. Treated fabrics will not become yellow when exposed to heat, light, ozone, or atmospheric oxides or nitrogen, it is claimed. Product is readily dispersed in water at temperatures of 100° to 160° F. and recommended concentrations vary from 0.1 to 1.0 per cent, depending on the fibers being treated and the effect desired.

Robert Magnus Elected

Robert B. Magnus, Sr., executive vice-president of Magnus, Mabee & Reynard, Inc., New York, has been elected treasurer of the New York Board of Trade, Inc. He is also chairman of the Board's budget and finance committee.

Mr. Magnus was formerly a vice-president of the organization and president and treasurer of the Drug, Chemical & Allied Trades Association, a section of the New York Board of Trade, Inc.

Wasserman Forms Firm

The formation of Wasco Laboratories and the acquisition of a plant in Vernon, N. J., for manu-



Kurt Wasserman

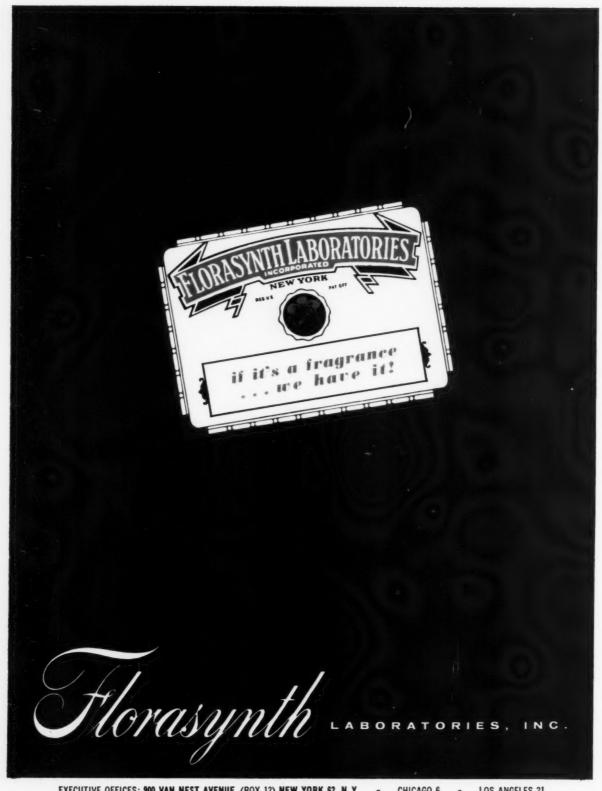
facturing and warehousing synthetic waxes, resins, emulsion polymers and allied specialty chemicals, were announced recently by Kurt J. Wasserman, formerly vice- president and technical director of Hostawax Co., New York.

The plant, located on a three acre site, has its own rail-road siding, and additional ware-house facilities will be added. Technical sales and service laboratories, including an aerosol laboratory, will service accounts in the United States and Canada in the aerosol, wax and polymer compounding, polish and plastic fields.

Mr. Wasserman, formerly vice-president and technical director of Dura Commodities Corp., New York, stated Wasco Laboratories will manufacture and sell raw materials through their own personnel and agents, and act as a specialized technical sales and service organization for other chemical producers.

Michael Wolfe Dies

Michael J. Wolfe, 61 Sheboygan, Wis., businessman and inventor, died recently. Mr. Wolfe had invented several chemical cleaners for household use, which were marketed by Wolfe Kote Corp., and Wolfe Products, Inc., both of Sheboygan.



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SALES OFFICES IN PRINCIPAL FOREIGN COUNTRIES

Hurlimann Joins Geigy

Conrad G. Hurlimann recently joined Geigy Chemical Corp., Ardsley, N. Y., as director



Conrad Hurlimann

and vice-president.

Before his affiliation with Geigy, Mr. Hurlimann was, for several years, administrative vicepresident and director of Pfizer International, Inc., New York.

Foster C-P Vice-President

David R. Foster, formerly chairman and managing director of Colgate-Palmolive Co., New York, has been elected vice-president of Colgate-Palmolive International, Inc., in charge of sales and advertising for Europe and the United Kingdom. He succeeds J. H. Carpenter, who is returning to the western hemisphere to assume another post, as yet announced.

Frank J. Carbon, formerly executive vice-president and general manager of Crusellas Y. Compania, S. A., Havana, has been appointed chairman and managing director of Colgate-Palmolive, succeeding Mr. Foster.

Risch Newport Div. Mgr.

Theodore H. Risch has been appointed general sales manager of the Newport Industries division of Heyden Newport Chemical Corp., New York, it was announced recently. Formerly field sales manager of the firm's chemical division,

Mr. Risch is in direct charge of all marketing activities of the Newport Industries division, which recently expanded its sales department.

Mr. Risch, with Heyden Newport for 14 years, has served consecutively as sales representative, district sales manager, product sales manager and field sales manager, all for the company's chemical division.

Chemway Earnings Dip

Chemway Corp., Wayne, N. J., recently reported a decline in its earnings and sales for the first quarter of 1961. Sales were \$1,800, 900, as compared with \$1,934,775, in 1960. Net income fell to \$20,306, from \$37,785 in 1960. Earnings per share were 1.7 cents, as compared with 3.3 cents for the first quarter of 1960.

Fields Named I F F Manager

The appointment of Harry Fields as area manager in South America, was announced recently by International Flavors & Fragrances, Inc., New York.

Mr. Fields' new responsibilities include supervision of the IFF manufacturing subsidiaries in Brazil and Argentina as well as company activities in several adjacent countries. His base of operations will be at the company's facility in Rio de Janeiro.

He has been associated with IFF and one of its predecessor companies, Polak & Schwarz, for 13 years, in the United States and abroad.

Harry Fields



Dow Names Frank

Myron A. Frank has been named automotive chemicals products manager for Dow Chemical



Myron Frank

Co., Midland, Mich., it was announced recently. He succeeds John P. Strouss, recently named chemicals district sales manager in Dow's New York office. Mr. Frank directs the sales of antifreeze and full-fill coolants for factory fill and private label, brake fluids, and "Ambitrol" industrial engine coolant.

He joined Dow in 1951 and was assigned to the chemicals technical service and development department on products for the automotive industry. He transferred to automotive chemicals sales in 1958.

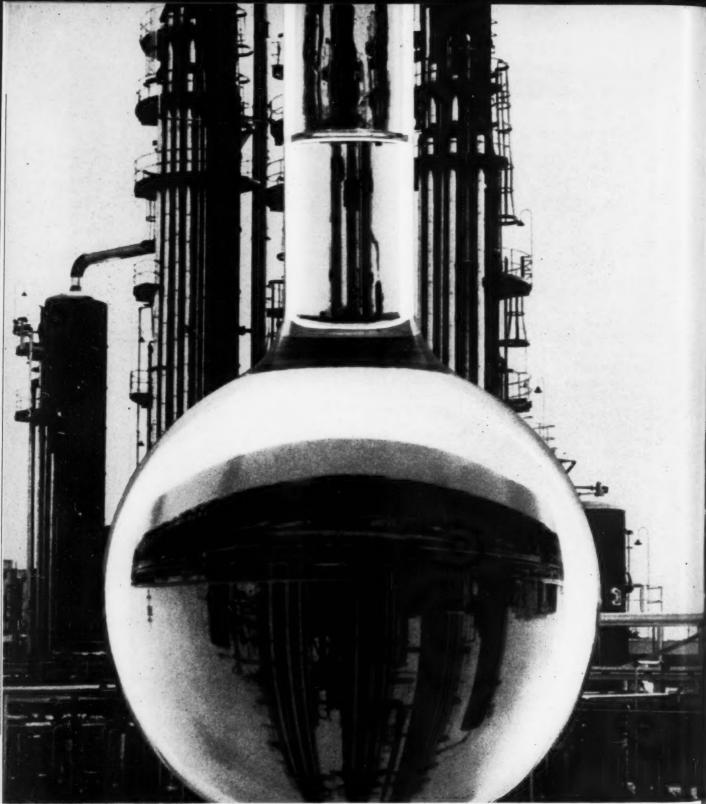
Roddey Heads Rozilda

Glenn Roddey was recently elected president of Rozilda Laboratories, Inc., Long Island City, N. Y., manufacturer of surfactants for detergents, cleaners and other specialties.

Mr. Roddey, formerly vicepresident of the company, reported a substantial increase in the firm's sales for the past 12 months.

Edward Snyder Dies

Edward P. Snyder, 71, senior partner of Moore & Munger, New York exporter, importer and distributor of waxes and clay, died April 19th, at Memorial Hospital, New York.



Arizona's new rectifying towers as photographed through a flask of ACINTOL® FA3 Fatty Acid

ARIZONA TAKES THAT EXTRA STEP TO BRING YOU THE LIGHTEST FATTY ACID AT ITS PRICE

In its new plant at Springhill, Louisiana, Arizona has five rectifying towers for fractionating tall oil. Here is one more aspect of Arizona's constant extra effort to bring you the lightest, purest tall oil products available in their price range. It takes this kind of a plant to produce the kind of fatty acid wanted today—a product like ACINTOL® FA3.

New ACINTOL FA3 Fatty Acid is the light-

est, purest product of its kind. Specially tailored to soap industry needs, ACINTOL FA3 is low in unsaponifiables, high in fatty acid content. In short, the perfect economical replacement for oleic acid.

Arizona maintains a complete, diversified line of tall oil fatty acids. You can count on Arizona for the highest quality products in constant supply, for service that's always dependable and thorough. Both in raw material resources and facilities, Arizona

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World's Largest Supplier of Tall Oil Chemicals ACINTOL® Tall Oil Products, ACINTENE® and ARIZOLE® Terpene Products

USDA Uses Pesticides to Fight Beetles

ALL planes arriving at New York from Paris are being sprayed with insecticides to destroy a European beetle, the U. S. Department of Agriculture reported recently. The reddish-brown beetle, melolontha (L.), belongs to the same family as the Japanese beetle and thrives in most of Europe in latitudes similar to those in the U. S. and Canada. The chafer is destructive to plants in both its grub and beetle forms.

The insect has been found since April 6 on 18 different airplanes, including five different craft in one day. The largest numbers are found in airplane baggage and cargo compartments, although some beetles have been found in passenger cabins.

Other measures being taken to prevent the insect's entry into this country include sending a plant quarantine inspector of USDA's Agricultural Research Service to Paris to work with airlines and French authorities in an effort to eliminate the pests from planes before they take off for the U. S. The airlines have sent aerosol sprays to France for pre-flight treatment of the planes. Plant quarantine inspectors at other U. S. international airports have been alerted to this new threat.

Long lasting soil insecticides have been applied to more than 10,000 acres of airport grounds in the northeastern Lakes and middle Atlantic states. Eventually, all major U. S. airports will receive such treatment. This is a secondary defense against introduction and spread of soil-infesting pests of all kinds — one means of destroying insects before they get on outgoing planes, and of keeping newly arrived pests from becoming established on airport grounds.

Dow Corning Names Vidal

Robert E. Vidal was recently appointed manager of the Greensboro divison of Dow Corning Corp., Midland, Mich. Mr. Vidal joined the product engineering laboratories of Dow Corning in 1951, and has held various sales positions within the company, for the past 10 years.

Dow has its silicone specialties manufacturing and sales and new product engineering laboratories, in addition to its textile emulsion plant located at Greensboro, N. C.

Gillette Earnings Up

Gillette Co., Boston, recently announced improved earnings and sales for the first quarter of 1961, as compared with the same period in 1960. Net sales rose to \$62,164,482, from \$51,915,268 in 1960. Income for the period was \$10,045,170, as compared with \$8, 413, 262 the previous year. Amount earned per share of common stock rose from 90 cents in 1960 to \$1.07 this year.

Heyden Newport Appoints

Five organizational changes in the sales structure of the chemical division of Heyden Newport Chemical Corp., New York, were announced recently. F. A. Degener has been appointed director of marketing, W. C. Deakyne, Jr., assumed the post of general sales manager, and James Claypoole was named field sales manager in the

reorganization. Other new assignments in the division include the appointment of E. L. Barkley as manager of sales development, and



F. A. Degener

E. M. Vogel, district sales manager, New York and New Jersey.

Mr. Degener, associated with Heyden since 1930, was formerly general sales manager of the chemical division. Formerly assistant general sales manager of the chemical division, Mr. Deakyne, with Heyden since 1951, has served as sales representative with the Philadelphia district office, southern regional sales manager, and New York sales manager.

James Claypoole joined the corporation in 1946, and has been successively manager of Heyden's Philadelphia, New Jersey and combined New York-New Jersey sales districts.

Officers of the Twin Cities Chemical and Allied Trade Association for 1961 are, seated, left to right: Dick Thompson, secretary; Ed Myers, vice-president; John Johnson, president; (not shown, Mike Brannen, treasurer); and Stan Remeneski, a director. Other members of the board of directors are, standing, left to right: Milt Lindemann, Jack Murray, Willis Olson, Frank Herrick, George Carhahan, Bill Fenelon and John Douglas.



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An Important Breakthrough in Perfume Chemistry

The tenacious woody notes of Sandalwood...subtle fragrance of the mysterious East...are now completely captured by Sandela.

For years perfumers have sought to find a truly functional chemical body to replace the rare and costly natural oil...until today... until Sandela by Givaudan. For here at last is a completely successful, fully tested alternate for the natural Sandalwood oil in just about every application...soaps, perfumes, powders, creams, detergents, aerosols. The availability and economy of Sandela place the admired Sandalwood note at the perfumer's unrestricted disposal. It is destined to become one of your most valued aromatics.

GIVAUDAN-DELAWANNA, INC.

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SANDELA-REG. U.S. PAT. OFF

New Research Facility

Dr. Floyd M. Mizell, former president of Tower Chemicals, Inc., Pittsburgh, recently established an



Floyd M. Mizell

independent research and development company, the Florida Institute of Tropical Research, P. O. Box 1161, Ft. Lauderdale. In addition to the independent research projects within the company, creating and developing new products and equipment, FITR offers tropical testing of existing products and techniques and technical representation in the South Florida and Caribbean area.

Currently the firm is engaged in the development of novel cleaning equipment. Other development and research activities are aimed at the creation of new and different products for the agricultural, medical, automotive, marine, textile, paint and air conditioning fields.

New Polish Emulsions

Two new polymer emulsions intended for floor polish formulations were introduced early this month by U B S Chemical Co., 491 Main Street, Cambridge 42, Mass.

A styrene emulsion, designated "U-5000 Ubatol," comes at 50 per cent solids, can be compounded and shipped as a 40 per cent solids polish concentrate to be further diluted with water to a 12 per cent solids buffable polish. Main features claimed for this ma-

terial are economy in shipping and good gloss, leveling and recoatability of the final product.

"U-3400 Ubatol," an acrylate based emulsion, is intended for non-yellowing household polish formulations, said to exhibit improved wear characteristics and resistance to black heel markings.

P&G Increases Dividend

Procter & Gamble Co., Cincinnati, recently voted a quarterly dividend of 35 cents per common share, payable May 15 to shareholders of record as of April 21.

P & G's last quarterly dividend on common shares was 65 cents. In March the company's shareholders split the common stock two-for-one. The new 35 cent rate is equal to a rate of 70 cents on a pre-split basis, an increase of approximately 8 per cent.

Nopco Appoints Gagnier

F. Russell Gagnier was recently appointed sales representative in the Pacific northwest for the complete line of industrial division products of Nopco Chemical Co., Newark, N. J. Formerly Nopco's sales representative in southern California, Mr. Gagnier, who joined the firm in 1948, has been in technical sales and service with the industrial division since 1950.

Italian Oil Chemists' Soc.

Formation of an Italian Oil Chemists' Society (Societa Italiana per lo Studio delle Sostanze Grasse) was announced recently. The nonprofit professional group will be headquartered at Via Lauro 3, Milano, Italy.

The society's transactions and announcements will appear in the journal published by the Fats and Oils Experiment Station. The name of the publication has been changed, effective Jan. 1961, to La Rivista Italiana delle Sostanze Grasse.

Interested parties communicate with Dr. G. Jacini, secretary, at the society's headquarters.

Givaudan to Europe

Xavier Givaudan, son of Andre Givaudan, recently returned to Europe after spending six



Xavier Givaudan

months with Givaudan-Delawanna, Inc., New York, and visiting its branch offices throughout the United States. He will join the management of L. Givaudan & Cie., Paris, and will be active in the world wide Givaudan organization.

Stauffer Offers New Acid

Thioacetic acid is available in pilot plant quantities from Stauffer Chemical Co., New York, it was announced late last month. Major applications for the new compound and its esters include among others, pesticides, synthetic resins, and lube oil additives.

For prices, development quantities and technical data including bibliographic material, communicate with Stauffer's market development department at 380 Madison Ave., New York.

Mrs. James A. Reilly Dies

Ethel Bohan Reilly, 57, widow of James A. Reilly, who was executive vice-president of Colgate-Palmolive Co., New York, died April 19, after a two month illness, in Orange Memorial Hospital, Short Hills, N. J.

Mrs. Reilly is survived by a daughter, Mrs. Daniel G. McCarren Jr., and a brother, Walter H. Bohan.

Don't use make-shift leveling resins Shanco tailors them to fit your job

L1001 For use with styrene emulsions

334 For arcrylic emulsions

L1159 For high water resistance

L1127 For hard drying polymers

L1162 For softer drying polymers

L1158 For high solids, private label formulas

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At Shanco we have been test building custom resins for twelve years, these for the most exacting members of the trade.

If the resins tested do not appear to fit your requirements, permit us to build a Shanco resin for you.

While at the Chicago convention, you will find a welcome at the Shanco suite.

* * * *



D & O Award Recipient

Theodore P. Labuza, receives a plaque and a \$1,000 scholarship, from Kenneth W. Hartley,



Mr. Hartley, right, presents Dodge & Olcott plaque to Theodore P. Labuza.

vice-president, Dodge & Olcott. Inc., New York, on behalf of the company.

The scholarship, is presented yearly to encourage deserving and outstanding students to take undergraduate work leading to a Bachelor's Degree in food technology, food engineering or food science. Mr. Labuza is a student at the Massachusetts Institute of Technology.

Hazleton Elects Tibbetts

Roland Tibbets has been elected to the board of directors, Hazleton Laboratories, Inc., Falls Church, Va., it was announced recently by Dr. Lloyd W. Hazleton, president. Mr. Tibbetts is vice-president for administration of the firm.

Prior to joining Hazleton in 1959, Mr. Tibbetts was program director of the National Small Business Men's Association and had been executive vice-president of the U. S. Junior Chamber of Commerce.

New Nat. Dairy Directors

Two new directors recently elected to the board of National Dairy Products Corp., New York are: Herbert Humphreys, chairman of the firm's Humko Products division, Memphis, Tenn., and Emanuel M. Terner, president, Metro Glass division, Jersey City, N. I.

Mr. Humphreys was one of the founders, in 1930, of Humko Products, which became a part of National Dairy in 1952. The firm has produced edible oils and shortenings for 30 years, and industrial chemicals derived from fats for the last 12 years.

Mr. Terner has been in glass industry for 32 years, holding various positions in operations, sales and management. He was president of Metro Glass when it became a part of National Dairy in 1956.

FMC Names Cochran, Hoyer

Robert E. Cochran, formerly alkali product manager, has been named assistant manager of sales for the Chlor-Alkali Division of Food Machinery and Chemical Corp., New York, it was announced recently. Mr. Cochran, with FMC since 1955, will direct the division's field sales force.

Richard M. Hoyer, who joined the Chlor-Alkali Division as a sales manager of the southern district in 1951, succeeds Mr. Cochran as alkali product manager.

Victor Appoints Michaels

Edwin S. Michaels was recently named assistant director of the special products department of Victor Chemical Works, division of Stauffer Chemical Co., Chicago. Mr. Michaels, who has worked in the special products department since starting at Victor in 1959, will assist in the commercial development of both new products and new industrial uses for established products.

Revlon Sales-Earnings Up

Revlon, Inc., New York, recently reported increased sales and carnings for the quarter ended March 31. Sales rose to \$32,950,000 in 1961 over the previous year's total of \$29,886,000. Income was \$2,690,000, as compared with \$2,535,000 for 1960. Earnings per share increased 5 cents from 98 cents in 1960 to \$1.03 in 1961.

National Names Cathey

Henry A. Cathey has been named resident manager of the Charlotte, N. C., sales branch of the National Aniline Division of Allied Chemical Corp., New York, it was announced recently.

Mr. Gathey, who joined National Aniline in Charlotte, as a laboratory assistant in 1937, is responsible for the sales of dyestuffs, intermediates and chemicals in North Carolina, South Carolina, and Virginia.

New Du Pont Drycleaner

E. I. du Pont de Nemours & Co., Wilmington, Del., recently announced the development of "Valclene", a new, dry cleaning composition said to make possible the cleaning of garments in coin-operated dry cleaning machines in 15 minutes. The new composition, based on a fluorocarbon, is said to have a safe vapor concentration limit five times greater than that of fluids now used. "Valclene" is also said to be non-flammable and to clean without odor.

Emanuel Terner



Herbert Humphreys



BUILDS BETTER PRODUCTS dishwashing liquids dry detergent powders Cemulsion cleaners

PILOT ABS-99 builds better end products because ABS-99 is a better product to start with. ABS-99 is the highest dodecyl benzene sulfonic concentrate commercially available: 98% concentrated with extra activity -14% more active ingredient than ordinary 88% pure sulfonics.

ABS-99 is purer. So pure, in fact, that it may be kept in plain steel containers!

Pilot ABS-99 offers greater compatibility with oils and other organic substances; it prevents precipitation because of its low sulfate content, lowest of any similar material on the market.

The uniqueness of this new standard of purity is a result of Pilot's *cold processing*: built in are high detergency and foaming character—stabilized are its light color, viscosity and low odor. You'll save, additionally, on perfuming.

Pilot ABS-99 adds greater flexibility to your detergent formulations, for it is the basic building block for all sulfonic detergent products. So, for superior products—start with the best. Write for technical literature and samples right now.



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of California
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N. S. S. A. Meets, Elects Samuel Newman

THE 38th annual convention and trade show of the National Sanitary Supply Association held



Samuel Newman

last month in Chicago, drew the largest number of exhibitors and attendance in the history of the Association.

Over 200 manufacturers of maintenance and sanitary supplies, and chemical specialties, displayed their products to more than 2,500 people who attended the show.

Heading the business section of the convention was the election of Samuel Newman, a distributor, executive vice-president of Creco Co., Long Island City, N. Y., as president. He succeeds Herbert J. L. Baum, Mipro Metal Products Co., South San Francisco, Calif.

Mr. Baum, as one of his last official acts as president of the Association, presented a commemoration plaque to Leo J. Kelly, who retired as executive vice-president of the Association effective May 1. He is succeeded in that position by his son Bernard, who had served as executive secretary since 1956. Leo Kelly, with the NSSA since 1945, will serve as its executive consultant for five years.

Other officers and directors of the National Sanitary Supply Association are:

Robert L. Cooley, White Mop Wringer Co., Fultonville, N. Y., vicepresident; Nick G. Contos, T. F. Washburn Co., Chicago, treasurer; Morton Z. Silverman, Pro-Tex-All Co., Evansville, Ind., secretary of the board; Sey-

mour Chase, Federal Fibre Corp., Long Island City, N. Y., district one director; H. E. Galer, Jr., Galer & Hults, Inc., Philadelphia, district two director; Orin W. Beach, Crown Chemical Co., Spartanburg, S. C., district three director; E. W. Timm, Palmer Fixture Co., Waukesha, Wis., district four director; A. J. Cuchia, Hygeia Chemical Co., Galveston, Texas, district five director: Lee Gradinger, Golden Star Polish Manufacturing Co., Kansas City, Mo., district six director; E. F. Ziegler, E-Z Janitor Supply Co., Phoenix, Ariz., seven director; Robert R. Friedenthal, Easterday Supply Co., San Francisco, district eight director; and Theodore R. Ruwitch, World Dryer Corp., Chicago, is director-at-large.

Two Join Fritzsche Club

Edward E. Langenau, vicepresident and director of the analytical laboratories of Fritzsche Brothers, Inc., New York, and Henry Bechtolf, flavor chemist, were recently elected to the firm's Quarter Century Club. Both received club membership scrolls and gifts at a luncheon given in their honor.

Ring Joins Duveen

Robert C. Ring has joined the Duveen Soap Corp., Long Island City, N. Y., as sales manager, it was announced recently. Mr. Ring was formerly associated with Hewitt Soap Co., Dayton, O., for 15 years. He is currently president of the Cosmetic Industry Buyers' & Suppliers' (CIBS) Association, New York.

Robert C. Ring





Mysie Emmet

Mrs. Emmet Joins Perry

Mysic Emmet has joined Perry Bros., Inc., Woodside, N. Y., essential oil and perfume house, it was announced late in April by Herbert Perry, president. Formerly associated with Dodge & Olcott, Inc., New York, Mrs. Emmet was the first woman to become a member of the American Society of Perfumers in 1952.

Tall Oil Price Reduced

Arizona Chemical Co., New York, recently announced a price reduction on its "Acintol R" tall oil rosin. The new price is \$12.15 a pound, in drums, down from \$13.75. This price change applies to rosin from Arizona's plants at Springhill, La. and Panama City, Fla.

IFF Appoints Freeman

Stanley K. Freeman recently joined the research staff of International Flavors and Fragrances, Inc., New York, as a project leader. Dr. Freeman's appointment was announced late in April by Ernst Theimer, IFF director of research and development. Formerly chief chemist at Benzol Products Co., Dr. Freeman is now located at IFF's Union Beach, N. J., research center.

A graduate of Brooklyn Polytechnic Institute, Dr. Freeman is chairman of the chemical analysis committee of the Insecticide Division of the Chemical Specialties Manufacturers Association.



Shoe polish with lasting lustre . . . polish for his car. Products that are stable in the can, sparkling on the finish—because they contain ethanolamine dispersing agents. And gentle ethanolamide emulsifiers, derived from ethanolamines, assure that his shaving cream lathers just right, wilts whiskers — yet leaves his face silken-soft. Ethanolamides, too, add the lathering qualities he likes in cream shampoos.

Cosmetics that are smooth, stable, shampoos with perfect lather bubble size, opacity, body and hair conditioning effect. As suds boosters, they add muscle to her household detergents and soaps. And ethanolamine emulsifiers keep floor and furniture polishes smoothly blended.

sifiers keep floor and furniture polishes smoothly blended.

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NITROGEN DIVISION Dept. EA12-27-1, 40 Rector St., New York 6, N. Y.

New P&G Vending Packet

Procter & Gamble Co., Cincinnati, recently announced its low sudsing detergent "Dash," is now available in a five cent vending packet. Designated the "Dash 240's Coin Vended Size," the product is packaged 240 packets to the case. "Dash 240's" packet joins the "Dash 120's" box, enabling coin laundry owners to offer their customers both five and 10 cent sizes of "Dash."

Product is packaged in a laminated polyethylene coated pouch stock, sealed at both ends and on the center seam to safeguard against leaking, sifting or splitting. The new "Dash 240's" are designed to fit most five cent vending machines used in coin laundries.

Babbitt Earnings Up

B. T. Babbitt, Inc., New York, recently announced an increase in earnings for the first quarter of 1961 ended March 31. A net profit of \$70,880 or 5 cents a common share on net sales of \$4,798,860, as compared with a profit of \$14,117 or ½ cent per share on sales of \$5,738,089, for

the same period in 1960 was reported. The company reported a year-end loss and a special item of \$146,241 for 1960, as compared with a net loss of \$1,589,737 for 1959.

D&O Boston Branch Moves

Dodge & Olcott, Inc., New York, recently announced the transfer of their Boston sales office, under the direction of James Dugan, to 600 Main St., Waltham 54, Mass.

Cos. Career Women's Lunch

At its seventh annual men's day luncheon held April 18 at the Waldorf Astoria Hotel, New York, Cosmetic Career Women, Inc., honored Anna J. Figsbee, director of public relations at Avon Products, Inc. Miss Figsbee was presented with the first "Cosmetic Career Woman of the Year" award, consisting of a specially designed gold charm. She has been associated with Avon Products since 1901.

Under the chairmanship of Annette Green of Annette Green Associates, the luncheon was attended by more than 250 members and guests. Featured luncheon speaker was Gerald Morgan of Hamel, Morgan, Park & Saunders, Washington, D. C. Mr. Morgan, who was deputy assistant to President Eisenhower, gave a talk on his 20 years of government service.

Accent on Youth

(From Page 67)

B.A. and M.A. degrees in economics and finance from the University of Pennsylvania. He also completed studies in industrial engineering at the University's Towne School.

Rounding out top management at Fels are Joseph J. Greipp and Robert F. X. McRae, who were reelected treasurer and secretary, respectively.

Fels & Company had its beginnings in 1866 when Lazarus Fels started a small soap manufacturing business in Baltimore. His eldest son, Joseph, joined him in the enterprise in 1869. Ten years later, the Fels family enlarged its operation through the purchase of a soap-making business from Thomas Worsley of Philadelphia. This business had been founded in 1846 in Combes Alley, in the heart of Philadelphia's early colonial section. In addition to Joseph, three other sons, including Samuel who was to have a profound effect on the success of the company in later years, were also associated with the enterprise at that time.

The business, which at that time manufactured only toilet soap, was moved to a small.plant at 114 Arch Street, Philadelphia. A few years later, increased sales enabled Fels and his sons to move production facilities to a somewhat larger factory at Third St. and Girard Ave.

The business of making and selling toilet soaps prospered. However, in 1894, Fels' decision to attempt the combination of dirtloosening "naptha" with soap resulted in the acquisition of another small firm, and the introduction of the company's famous golden "Fels Naptha Bar Soap," which

Guests at Cosmetic Career Women's annual men's day luncheon, left to right: Ruth Drake, Red Book magazine; Kay Colton, Morningstar-Paisley, Inc.; Gerald D. Morgan of Hamel, Morgan, Park & Saunders, Washington, D. C., guest speaker; Anna J. Figsbee, Avon Products, Inc.; Kay Reed, Warner-Lambert Pharmaceutical Co.; Annette Green, Annette Green, Ansociates; and Marie V. Carroll, executive secretary of the California Cosmetic Association.



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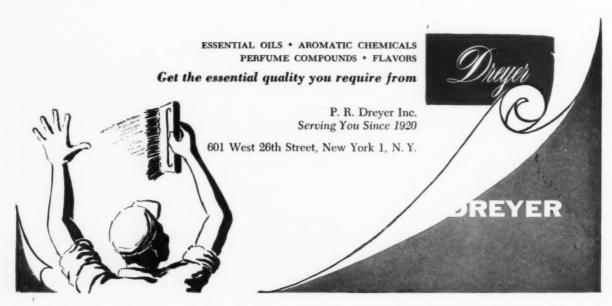
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had popular acceptance from the start, changing the entire future of the company. This initial success and a continuing demand for the new golden bar impelled the company to devote its entire efforts toward making and selling it. All other brands and products were gradually discontinued.

Present Site Bought

Shortly before the turn of the century land was purchased for a plant at 73rd St. and Woodland Ave., on the oldest highway in Pennsylvania. Now consisting of 30 acres, this historic site has been the company's manufacturing and administrative headquarters since that time.

The location of Fels & Company's plant is interesting because of its importance to the economy of the area, its complex of sturdy buildings, and its historical significance. At this location, the first public industry in America, a flour grinding mill, was erected in 1643, 39 years before William Penn founded Philadelphia. Located nearby was one of the original American sawmills and sluiceways, the foundations for which are now some ten feet below the surface of Cobbs Creek which flows through Fels' property.

The sturdy stone Blue Bell Tavern, built in 1766, still stands opposite the Fels office and plant buildings at 73rd St. (or Island Road) and Woodland Ave., retaining to this day the historical charm of the area.

Their business a success in America, Joseph and Samuel Fels set out to expand the business to overseas markets in 1901. Joseph, the senior partner moved to England, where he successfully developed a market for Fels Soap. Soap for both American and British markets was made in Philadelphia. The overseas market continued to flourish until Joseph's death in 1914. His death and curtailed shipping during World War I ended the company's sales in England. Today, the company's products are sold in Canada and to

U. S. military personnel in overseas commissaries.

The firm was incorporated in 1914 and Samuel S. Fels, the voungest brother, became the first elected president. He served in this office until his death at the age of 92 in 1950. During his lifetime he established a reputation for his interest in and contributions to civic, scientific., and educational advancement. Among the wide range of institutions begun by the Fels Fund are the Fels Research Institute for the Study of Human Development at Antioch College, Fels Research Institute of Temple University Medical School, the Fels Institute of Local and State Government of the University of Pennsylvania, and the Fels Planetarium in Philadelphia's Franklin Institute.

Fels believed strongly in the highest standards of manufacturing and product quality, and largely for this reason made all Fels products in one plant in Philadelphia. Sales offices, however, were strategically located in New York, Chicago, Cincinnati, Minneapolis, San Francisco and Boston.

New Products Needed

With changes in laundry practices and materials, it became necessary for the company to introduce new products to supplement the original bar soap. Research aimed at a granulated product for all types of washing machines resulted in the development and successful national marketing of "Instant Fels Naptha" in 1953. Through further research, the company kept pace with the trend toward liquid synthetic detergents through the development in 1957 of "Gentle Fels," a dishwashing liquid containing lanolin. Despite heavy competition in this field, the product won immediate and lasting success in markets across the United States, and Fels added new production facilities to supply expanding sales.

The product line was enlarged again in 1959 with the introduction of "Fels Naptha Cleaner," an all-purpose cleaning agent. Following successful test marketing in several major markets, it went into national distribution in 1960.

"Fels-Matic," a dry detergent especially engineered for automatic washing machines, came out of the company's research laboratories in 1960 and other products are being developed. The company's market research division is seeking new products which can be merchandised through Fels' extensive distribution organization.

The development of a more diversified group of new products was accomplished under the leadership of Cyril G. Fox, who was elected a president in 1950. He had joined the company 29 years earlier and had devoted a great deal of his time and talents to marketing and advertising activities. Before becoming president, he had served as assistant sales manager, sales and advertising manager, and vice president and general manager.

Under his leadership, steps were taken to enlarge Fels' research and development efforts. Construction of new and larger facilities for research was begun in 1960.

New Aerosol Filler

(From Page 167)

ton. The propelling pressure is on top of the product in its supply container.

The filler is said to offer greater flexibility in changeover, with fewer parts to clean, and has fewer moving parts and greater accuracy of fill, since the piston floats in the product, with almost no leakage by it.

Aerosol Patents

(From Page 195)

tending transversely within the aperture of said adjutage to latchingly engage said shoulder means, the tensioning portion of said adjutage being under axial compression and constantly urging said plug member in a direction to effect sealing engagement of the obturator with the valve seat.



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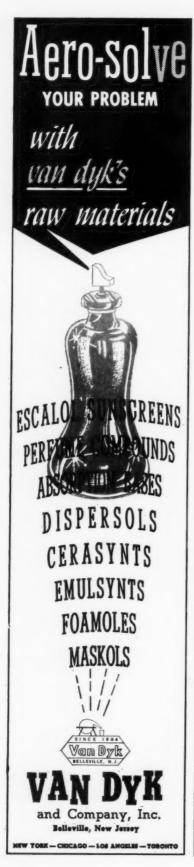
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Pennsalt Opens New Office

Pennsalt Chemicals Corp., Philadelphia, recently announced the establishment of an organic chemicals sales district on the west coast, with offices in San Mateo, Calif. John W. Conyers has been named western district sales manager.

The new district will initially comprise the states of Washington, Oregon and California and will be responsible for distribution of the company's line of organic chemicals in the area. Sales of Pennsalt's inorganic chemicals will continue to be handled by the industrial chemicals division west coast offices in Tacoma, Portland and Los Angeles. Mr. Conyers has opened an office at 235 E. 3rd Ave., San Mateo, and will also use the facilities of the industrial chemicals division office at 6277 E. Slauson Ave., Los Angeles.

Mr. Conyers has been with Pennsalt for ten years, serving in various staff marketing positions; for the past four years, he has been the organic chemicals sales representative for the company's Philadelphia region.

Surfactant Industry

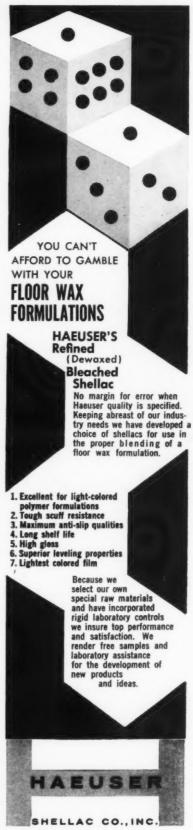
(From Page 61)

cipate having no surfactant value. This does not, however, exclude the possible use of such mixtures.

The most important and representative structures of surfactants have been reviewed here. Actually the number of tradenamed surfactants exceeds 1,000, if you take into account the products of all manufacturers and include all the variations in chemical structure as well as variations in assay, formulation, and physical form, such as powder, paste, gel, or liquid.

The selected surfactant structures illustrated in this report account for approximately one-half of all surfactant sales excluding soap.

(Continued Next Month)



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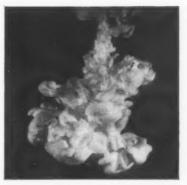
dized hydrocarbons for use as rust preventives and emulsifiers.



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Yardley Names Lucy Miller

Lucy Miller has been named department store supervisor on the Atlantic seaboard and in the middle west, it was announced recently by Yardley of London, Inc., New York. Mrs. Miller, with headquarters in Atlanta, is responsible for the supervision of department store promotions, demonstrations and sales training in her assigned territory.

Risdon at 50

(From Page 123)

side by side. Up-to-date laboratory filling equipment, flame extension test chambers, constant temperature ovens, and other highly specialized apparatus are included in the department's facilities.

Although Risdon's headquarters are at Naugatuck and the research and development laboratories are there, manufacture and assembly of the valves and acrosol containers takes place in three factories. Valve and container components are made in Naugatuck, then trucked to one of Risdon's two Danbury plants. At the newer of these, the Beaver Brook plant, the finishing operations such as degreasing, buffing, plating, texturing, and lacquering takes place. The plant in the center of Danbury houses the assembling operations.

Risdon-designed valves also are made in several foreign countries by selected firms licensed by the Naugatuck firm to supply the world market. Backed by Risdon's research and engineering, the valves manufactured by these foreign firms are subject to the same rigid quality controls that Americanmade Risdon valves must undergo.

What the next 50 years will bring to Risdon no one knows. But, it can be certain that in the tradition of the past half century the Connecticut firm will continue to stress ingenuity, quality and integrity — whatever products roll from its machines and assembly lines.

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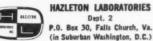
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(Turn to Page 261)

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Situations Wanted

Chemist: Experienced in manufacture of liquid and paste soaps, disinfectants, floor waxes and chemical specialties. Phila. manufacturer with national distribution. Address Box 582, c/o Soap.

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Situations Wanted

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Chemist: Product development chemist with 8 years diversified experience in specialties, waxes, detergents and disinfectants. Prefer metropolitan New York area. Address Box 604, c/o Soap.

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(Continued on Page 263)

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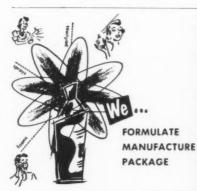
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Soap Plant: Going soap plant in Albany, New York. Sell or rent. For manufacture of soaps, chips, powder. Confidential. Address Box 609, c/o Soap.

Chemical Specialty Company, established one hundred years, manufacturing household, institutional and industrial chemical supplies. Modern equipment, old established accounts. A clean, low overhead business. Due to disability, owner will sell to right party half interest with arrangement for other half in time. Advise details your experience and capability. Box 8024 Pine Station, Albany, New York.

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(Continued on Page 265)



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COMING. MEETINGS

American Chemical Society, 140th national meeting, Chicago, Sept. 3-8.
American Oil Chemists So-

ciety, fall meeting, Pick Congress Hotel, Chicago, Otc. 30-Nov. 1. Canadian Manufacturers of

Chemical Specialties Association, fourth annual meeting and conference, Royal York Hotel, Toronto, Oct. 30-Nov. 1.

Chemical Industries Exposition, Coliseum, New York, Nov. 27 Dec. 2

27-Dec. 1.
Chemical Specialties Manu-Cnemical Specialties Manufacturers Association, 47th mid-year meeting, Drake Hotel, Chi-cago, May 15-17, 1961; 48th annual meeting, Roosevelt Hotel, New York, Dec. 4-6.

Chemical Specialties Manufacturers Association, Golf Tournament, Knollwood Country Club, Elmsford, N. Y., June 27.
Chicago Perfumery, Soap &

Extract Ass'n, Par-Busters' Golf Outings; River Forest Country Club, Elmhurst, Ill., May 23; Thorngate C. C., Deerfield, Ill., June 20; Itasca C. C., Itasca, Ill., July 27.

Drug, Chemical and Allied
Trades Association, annual meeting, Pocono Manor Inn, Pocono
Manor, Pa., Sept. 14-17, 1961.
Federation of European
Aerosol Associations, 3rd Interna-

tional Congress, Lucerne, Switz-erland, Oct. 3-8.

Manufacturing Chemists'
Association, 89th annual meeting,
The Greenbrier, White Sulphur
Springs, W. Va., June 8-10.
National Chemical Exposition, Amphitheater, Chicago,

tion. Amphitheater, Sept. 5-8, 1961.

National Agricultural Chemicals Association, annual meeting, Homestead, Hot Springs, Va., Oct. 29-Nov. 1.

National Hotel Exposition, Coliseum, New York, Nov. 6-9. National Pest Control Asso-

ciation, annual convention, Deauville Hotel, Miami Beach, Fla., Oct. 16-19.

New York Premium Show and Premium Advertising Conference, New York Coliseum, Sept. 25-28, 1961.

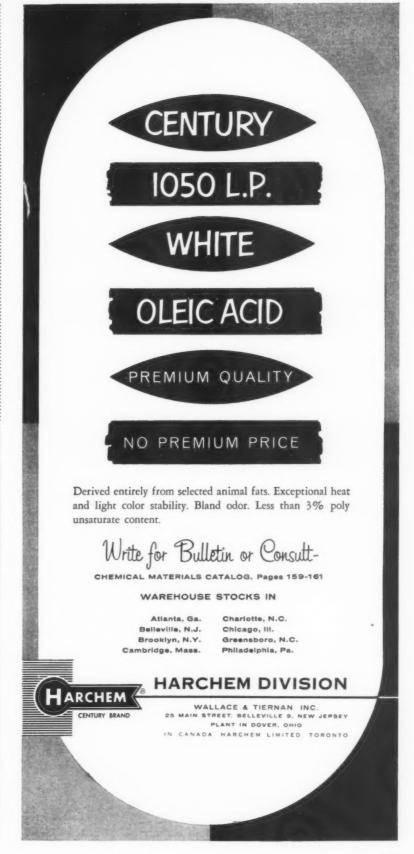
Packaging Institute, 23rd annual national packaging forum, Biltmore Hotel, New York, Oct.

Packaging Machinery Man-ufacturers Institute, (PMMI) fourth annual show, Cobo Hall, Detroit, Nov. 7-10, 1961.

Nov. 7-10, 1961.
Society of Cosmetic Chemists, annual seminar, Barbizon Plaza Hotel, New York, Sept. 26-27; annual meeting, Biltmore Hotel, New York, Nov. 28; Chicago Chapter, monthly meetings, Henrici's Restaurant, Merchandise Mart, June 13; Sept. 12; Oct. 10, Nov. 14. Nov. 14.

Nov. 14.

Synthetic Organic Chemical Manufacturers Association.
monthly luncheon meetings,
Roosevelt Hotel, New York, April
13: June 13: Sept. 12: Oct. 10: and
Nov. 14: annual spring outing,
Skytop, Pa., May 22-24.



tale ends

TRWIN Strauss, prez of Dura Commodities Corp., a New York wax firm, was recently traveling on business through the West. He arrived early at the airport, and with an hour to kill, decided to catch up on his beauty sleep. He settled down in a comfortable easy chair, set his alarm wrist watch and snoozed... and snoozed... and snoozed. Unfortunately he neglected to set the alarm on his trusty "Big Ben" and woke up in time to wave frantically at the pilot as the wheels of the airplane left the ground. Needless to say, Irwin was early for the next plane.

Along with a distinct lack of personal freedom, Cuba is suffering from a severe shortage of soap. Although little is said officially about the lack of soap, Havanna's Communist Party newspaper, Hoy, recently published a little ditty called "I'll Have Soap Sometime." The theme of the song is that a little lack of soap never hurt anyone. The words accompanying the song, borrowed from a lively peasant dance, go like this: "If I now have what I never had, if I have a home, a country, I care nothing if I lack a little soap. What care I about a little soap?"

On the other side of the fence, a Milwaukee woman, whose apartment was threatened recently by fire, escaped with the following prized possessions: a towel, her purse, a cage containing two parakeets and two bars of soap.

Hercules Powder Co. invited the press to see its new polyolefins plant dedicated in Lake Charles, La., last month. There was nothing unusual about that, except the press was gathered at Hercules' advertising agency in New York City. There, via closed circuit television, the press sow and heard the entire proceedings, including speeches by Al Forster. Hercules, prexy, Werner C. Brown, general maanger of the company's cellulose products department and Louisiana's governor, Jimmy Davis. The new plant will enable Hercules to produce some 200 million pounds of high-density polyethylene for plastic bottles for bleach, detergents and assorted chemical spec ialties products. Fuller & Smith & Ross, who put on the show, said it was the first time a plant such as this had been dedicated by closed circuit TV. *

A Swiss firm specializing in waxes and varnishes for use on skis has developed a dandy new product. In the form of a paste, it is claimed to be easily applied, dries rapidly and forms a very resistant film. According to the maker, the film makes it possible to obtain

maximum speeds on all types of snow, except Spring snow and wet snow. We just can't wait until someone develops something for those latter two kinds of snow

Meanwhile, back in Florida, the head of the Florida Citrus Mutual predicts that before long there will be a citrus toothpaste. The chap is reported to be prodding research chemists, biochemists, etc., to come up with new citrus products that will sell more Florida oranges, grapefruit and tangerines more profitably. Can't you just visualize a sprout pleading with his mom to buy a tube of tangerine toothpaste?

A major maker of automatic laundry equipment is urging the 25,000 U. S. coin-operated laundries to install coin-operated. TV sets. It figures some housewives wash at home so they won't miss their favorite TV shows. How about those housewives who use launderettes to get away from same?

Remember the Bush boys we were telling you about in this space last month? Well, they've gone and done it again. B. T. (Tom) Bush, Jr., that is. 'e's up and left his job with Verley to move with his family to Australia. In a roundabout sort of way, that is. Before migrating "Down Under," Tom and his

family are going to spend a couple of months touring Europe in a Volksvagon. From Europe they'll head for Australia. No puns, please, about the Bushes to the Bush!

Pity Bob Solly of Harley Soap Co. in Philly. On Saturday night, April 22. Bob was singing with his theatre group in "Annie Get Your Gun." Bright and early the next a.m. he had to be in Chicago for the opening of the annual trade show and convention of the National Sanitary Supply Assn. After four gruelling days (and nights!) in Chicago, Bob had to scurry right back to Philadelphia to appear the following Thursday night in another performance of "Annie."

Jack Brenn, chairman of the board, or something, of Huntington Laboratories, Huntington, Ind., will miss the big C.S.M.A. 47th midyear meeting in Chicago. Jake and frau, Fannie, were to leave May 6 for a trip to Australia and New Zealand. From there they will fly to Tokyo to attend the Rotary International Convention, May 28 to June 1. They will return to the U. S. from Japan. Jake writes, rather cryptically, we think, "The Australian part of the trip is all business." 'spose Huntington is going to open a branch there? At-tached to Jake's letter is a card from his secretary Lucille, who says she "started here 34 years ago today! Ouch." Interestingly enough, Lucille's note appears on the border of a card on which are printed these immortal liness "A secretary-Looks like a woman, Acts like a lady, Thinks like a man, Works like a horse." Anyway, Jake, have a good time.

HOT SHIP: New Grumman "Gulf Stream" turbo prop jet of S. C. Johnson & Son, Inc., Racine. Wis., is latest addition to the air-minded wax firm's fleet. Capable of carrying 12 passengers and crew at a cruising speed of 350 m.p.h., the ship has a range of 2500 miles. Johnson's first plane, a Waco bi-plane with double open cockpits, went into service back in 1929. On her maiden flight from Ohio to Wisconsin was none other than Dr. J. Vernon Steinle, Johnson's director of research and development. The plane was called the Johnson "Wax Bird." Last year Johnson's planes logged 332 trips for a total of 154,000 miles and carried 1500 passengers. In addition to the "Gulf Stream," Johnson has two "Aero-Commanders."



